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**RECORDS AND DESCRIPTIONS OF BRAZILIAN ORTHOPTERA.**

BY JAMES A. G. REHN.

The records and descriptions in the present paper have been accumulating for approximately five years during the study of more representative regional series of Brazilian Orthoptera. Aside from the geographic data here presented, the taxonomic and variational information thus sifted out and here brought together is of very considerable value.

Two hundred and nineteen specimens are discussed, representing one hundred and two species belonging to seventy-six genera, of which seventeen species and one genus are described as new. In addition it has been necessary to give one new generic name.

The material treated belongs almost wholly to THE ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA, the Hebard Collection, which is on deposit at the Academy, the United States National Museum, the Museum of Comparative Zoology, and Cornell University, to the authorities of which institutions the author is indebted for the opportunity to study these collections. These institutions are indicated through the following pages by their respective initials.

**BLATTIDAE.****ECTOBIINAE.****Anaplecta replicata** Saussure and Zehntner.

1893. *Anaplecta replicata* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 25, pl. IV, fig. [Pernambuco, Brazil.]

Bonito, State of Pernambuco. January, 1883. (A. Koebele.)  
One male, three females. [U. S. N. M.]

These specimens are identical with material from Igarapé-assú, State of Pará, Brazil.

**Anaplecta chrysoptera** Shelford.

1906. *Anaplecta chrysoptera* Shelford, Trans. Entom. Soc. London, 1906, p. 247, pl. XVI, fig. 7. [Amazonas.]

Bonito, State of Pernambuco. September, 1883. (A. Koebele; "on cotton".) One male. [U. S. N. M.]

This specimen does not fully accord with Shelford's description and figure, having but ten instead of thirteen costal veins to the wings and no blackish color on the palpi. In other features the individual fully agrees with the description and it seems desirable to tentatively refer it to *chrysoptera*.

#### PSEUDOMOPINAE.

##### **Ischnoptera amazonica** Rehn.

1916. *Ischnoptera amazonica* Rehn. Trans. Amer. Entom. Soc., XLII, p. 225, pl. XIV, figs. 4 to 8. [Igarapé-assu, Pará, Brazil (type); Pará, Brazil; Independencia, Parahyba, Brazil; Ceará, Brazil; Piunuha to Concha Huaya, Peru.]

Bonito, State of Pernambuco. February 18, 1883. (A. Koebele.) One male. [U. S. N. M.]

This specimen has been compared with the typical material. The present record extends the range of this species a short distance south along the coast.

##### **Neoblatteella conspersa** (Brunner).

1865. *Phyllodromia conspersa* Brunner, Nouv. Syst. Blatt., p. 106. [Brazil.]

Bonito, State of Pernambuco. January-February, 1883. (A. Koebele.) Five males, one female. [U. S. N. M.]

These specimens are somewhat paler than the average of a large series from the state of Pará, with the usual pronotal pattern greatly reduced, faintly indicated or even absent. In all the tegminal punctulations are indicated although never strongly so.

#### EPILAMPRINAE.

##### **Notolampra gibba** (Thunberg).

"1826. *Blatta gibba* Thunberg, Mém. Acad. Imp. Sci. St. Petersb., X, p. 279."

Pernambuco, State of Pernambuco. January 2, 1883. (A. Koebele.) One male. [U. S. N. M.]

This specimen shows no trace of the median brown pronotal line mentioned by Saussure in describing the synonymous *lucida*.

All the previous exact records given for the species are from Bahia.

##### **Phoraspis picta** (Drury).

1782. [*Blatta*] *picta* Drury, Illust. Exot. Entom., III, p. 76, ind. (2), pl. 50, fig. 3. [Rio de Janeiro, Brazil.]

Santa Catharina. One male. [Hebard Cln.]

**Epilampra fallax** Saussure and Zehntner.

1893. *Epilampra fallax* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 64. pl. IV, fig. 36. [Santa Catharina. Brazil.]

Santa Catharina. One female. [Hebard Cln.]

Roça Nova, Serra do Mar, State of Paraná. One female. [A. N.S. P.]

These specimens are typical of the species.

**Epilampra imitatrix** Saussure and Zehntner.

1893. *Epilampra imitatrix* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 63. [Brazil.]

Chapada, State of Matto Grosso. October. One female. [U. S. N. M.]

This specimen differs from the description in several features, but as the species was based on the male sex these are probably only sexual. The tegmina are somewhat shorter and the pronotum of smaller size, but the other characters are in accord. The supra-anal plate is narrowly divided mesad.

This is the first record of the species with exact locality.

**Epilampra latifrons** Saussure and Zehntner.

1893. *Epilampra latifrons* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 66. [South America.]

Pernambuco, State of Pernambuco. (J. C. Fletcher.) One male. [M. C. Z.]

This specimen, which is the first of the species recorded with exact locality, fully agrees with the description except in a few features which appear to us to be matters of variation or interpretation. The interspace between the eyes is exceptionally broad for the male sex, but is not quite twice as wide as the depth of the eye; the intercalated area is represented by a slight but distinct fold, while the supra-anal plate is sub-bilobate instead of having its margin entire as described. In every other respect the specimen is in exact accordance with the description, and differs from the related *azteca*, with which it has been compared, in the differences given by the original describers.

**Epilampra atriventris** Saussure.

1895. *E[pilampra] atriventris* Saussure, Revue Suisse de Zoologie, III, p. 357. [Brazil.]

Santa Catharina. One female. [Hebard Cln.]

This specimen fully agrees with the original description except that the tegmina are slightly longer (22.6 mm.) and the supra-anal plate is not minutely incised mesad. The latter feature is probably one which varies on account of the, at most, very delicate character of that area of the plate. This is the first record of the species with exact locality.

## PANCHLORINAE.

**Panchlora prasina** Burmeister.

1838. *P[anchlora] prasina* Burmeister, Handb. der Entom., II, abth. II, pt. 1, p. 507. [Rio de Janeiro, Brazil.]

Piquete, State of São Paulo. January, 1901. One female.  
[A. N. S. P.]

Santa Catharina. Two females. [Hebard Cln.]

These appear to be the first exact records published since the original description of the species. One of the Santa Catharina females is smaller than the other individuals of this exceptionally large species.

## BLABERINAE.

**Petasodes dominicana** (Burmeister).

1838. *M[onachoda] dominicana* Burmeister, Handb. der Entom., II, Abth. II, pt. 1, p. 514. [Brazil.]

Santa Catharina. One male. [A. N. S. P.]

River Una, forty-six miles south of Bahia, State of Bahia. (A. de Lacerda.) One male. [Hebard Cln.]

**Monastria biguttata** (Thunberg).

"1826. *Blatta biguttata* Thunberg, Mém. Acad. Imp. Sci. St. Pétersb., X, p. 276, pl. 14."

Teffe (Ega), State of Amazonas. (Roulin; Thayer Expedition.) One male. [Hebard Cln.]

Rio dos Macacos, State of Pará. (Thayer Expedition.) One male. [M. C. Z.]

Rio de Janeiro, State of Rio de Janeiro. (Thayer Expedition.) One male. [M. C. Z.]

We have not been able to examine the original description of this species, volume ten of the "St. Petersburg Memoirs" being lacking in our set of that publication. However, the specimens before us accord with the interpretation of the species presented by Serville and Brunner, and have the cephalic margin of the pronotum lined with fuscous and the costal margin of the tegmina without any contrasted pale edging. The specimens previously recorded by us as this species, from Yaguarasapa, Paraguay<sup>1</sup> and Misiones, Argentina,<sup>2</sup> together with two other males now before us from Puerto Cantera (X, 1913; C. Schrottky) and Alto Paraná (II, 1914; C. Schrottky), Paraguay, belong to the form called *similis* by Serville. This has the cephalic margin of the pronotum deep ochraceous-orange and

<sup>1</sup> Entom. News, XXII, p. 248 (1911).

<sup>2</sup> Proc. Acad. Nat. Sci. Phila., 1913, p. 293, (1913); Ibid., 1915, p. 275, (1915).

the costal margin of the tegmina largely edged with the same. Whether *similis* should be considered a distinct species or merely a chromatomorph of *biguttata* we cannot say at present, an uncertainty shared with Brunner and Saussure, but it is our opinion that, tentatively at least, it should be considered worthy of specific rank. Aside from the color features the female appears to differ in the tegmina being longer than in *biguttata*, and of sufficient length to cover half of the dorsum of the abdomen. All the material we have referable to *similis* is of considerably larger size than that referred to *biguttata*, also much surpassing the measurements given in both of the original descriptions, but this, we feel, may be individual or geographic in character.

**Monastria cassidea** (Eschscholtz).

1822. *Blatta cassidea* Eschscholtz, Entomographien, p. 87. [Santa Catharina, Brazil.]

Theresopolis, State of Santa Catharina. One female. [Mus. Comp. Zool.]

It may be necessary in the future to remove this species from the genus *Monastria*, as there is a very great amount of difference between *M. biguttata*, the type of *Monastria*, and this species.

CORYDIINAE.

**Euthyrrhapha pacifica** (Coquebert).

1804. *Blatta pacifica* Coquebert; Illustr. Inconogr. Insect., III, p. 91, pl. XXI, fig. 1. [Islands of the Pacific Ocean.]

Piquete, State of São Paulo. One male. [A. N. S. P.]

PERISPHAERINAE.

**Hormetica<sup>3</sup> scrobiculata** Burmeister.

1838. *H[ormetica] scrobiculata* Burmeister, Handb. der Entom., II, abth. II, pt. 1, p. 512. [Bahia, Brazil.]

Amazons. One male. [A. N. S. P.]

As pointed out elsewhere<sup>4</sup> we consider this name to represent a species well separated from *H. laevigata* Burmeister, with which it is usually synonymized.

<sup>3</sup> We have recently had occasion to examine the type of Scudder's *Hormetica advena* (Proc. Davenp. Acad. Nat. Sci., VIII, p. 94) described from a specimen, unquestionably introduced, taken at Belmont, Massachusetts. It is a well marked species, characterized by lateral tegmina such as are found in *Parahormetica*, but having strongly developed tarsal arolia as in *Hormetica*. Its closest relationship is, however, not with *verrucosa* as stated by Scudder, but with *subcincta* Walker, from which it differs in the tegmina being lateral instead of quadrate and attinging, in the pronotal "horse-shoe" being of relatively less area, less pronounced and differently colored, and in the pronotum being in general less compressed and less vaulted. Both species have shining black abdomens, marginated laterad with ochraceous and the tegminal color similar.

<sup>4</sup> Trans. Amer. Entom. Soc., XLIII, pp. 341–342, (1917).

MANTIDAE.  
ORTHODERINAE.

**Mantoida burmeisteri** (Giebel).

1862. *Ch[aelaessa] burmeisteri* Giebel, Zeitschr. für die gesammte Naturwiss., XX, p. 316. [Neu Freiburg, State of Rio de Janeiro, Brazil.]

Chapada, State of Matto Grosso. August. One male. [M. C. Z.]

This specimen has been compared with individuals of the species from the Rio Salado and the Misiones, Argentina. The range of the insect is considerably extended to the north-westward by the present record.

MANTINAE.

**Acontiothespis bimaculata** (Saussure).

1870. *A[contista] bimaculata* Saussure, Mittheil. Schweiz. Entom. Gesell., III, p. 229. [Brazil.]

Goyaz, State of Goyaz. Two males. [Hebard Cln.]

We have compared these specimens with males from Sapucay, Paraguay and the Misiones and Jujuy, Argentina.

**Euryderes anisitsi** Brancsik.

1897. *E[uryderes] anisitsi* Brancsik, Jahresh. Naturw. Ver. Trencsin. Comit., XIX-XX, p. 63, pl. I, fig. 9. [Fuerte Olympos, Paraguay.]

Goyaz, State of Goyaz. Six males. [Hebard Cln.]

It was a surprise, as well as a pleasure, to recognize this previously little known genus and species in the present collection. The specimens fully agree with the original description and also, after allowing for a certain degree of roughness in the drawing, with the figure. Our specimens are all slightly larger than the original measurements, several appreciably so, but it is evident there is considerable individual variation in this respect. Superficially the present insect bears a considerable resemblance to the African Vatid genus *Danuria* and allied genera, the form of the head and pronotum much suggesting that found in the Old World group, but *Euryderes* is a true member of the Mantinae. Its position, however, appears to be removed from *Coptopteryx* and near *Photina* than the location given it by Kirby in his Catalogue. While distinctly aberrant in general features it would seem to us to fit more logically in a linear arrangement between *Metriomantis* and *Photina*.

The species was previously known only from the type locality.

**Photina brevis** Rehn.

1907. *Photina brevis* Rehn, Proc. Acad. Nat. Sci. Phila., 1907, p. 156, figs. 1 and 2. [Sapucay, Paraguay.]

Goyaz, State of Goyaz. Two males. [Hebard Cln.]

These specimens have been compared with the type of the species. In this form the venation of the wing shows much individual variation in the number of rami of the principal veins. Both of the Goyaz specimens are somewhat larger than the Sapucay individuals (type and paratypes).

The present record extends the range of the species to the northward.

**Angela infuscata** (Chopard).

1911. *Thespis infuscata* Chopard, Ann. Soc. Entom. France, LXXX, p. 320. [Saint Jean du Maroni and Nouveau Chantier, French Guiana.]

Obidos, Rio Amazon, State of Amazonas. One male. [A. N. S. P.]

This specimen agrees with two cotypes of this species now in the Hebard Collection. The range of the form is extended southward into the Amazon valley by the present record.

MIOPTERYGINAE.

**TRACHYMIOPTERYX<sup>5</sup>** new genus.

This genus is nearer to *Pseudomiopteryx* Saussure and *Eumiopteryx* Giglio-Tos than any others. Its relationship to *Pseudomiopteryx* is much less intimate than that with *Eumiopteryx*, and from the former the new genus can be immediately separated by the absence of a frontal spine and the angulation of the latero-cephalic sections of the pronotal margins. From *Eumiopteryx* its differences are more subtle, yet distinctly evident. The basal outline form of the pronotum is much the same as in *Eumiopteryx*, showing, however, a slight angulation to the expansion, which is suggestive of that found in *Pseudomiopteryx*, but the dorsal surface has three pairs of pronounced tubercles; the vicinity of the transverse sulcus is strongly sellate; the occipital outline is distinctly arcuate emarginate, instead of subtruncate as in *Eumiopteryx*, and the juxta-ocular lobes are decided and rectangulate; the facial shield is deeper in proportion, while the tegmina are more ample, as in *Pseudomiopteryx*.

The present genus is apparently a type intermediate between the two genera with which it has been compared, but sufficiently distinct to be generically recognized.

Genotype.—*T. tuberculata* new species.

**Trachymiopteryx tuberculata** new species. (Plate X, figs. 1 and 2.)

Type.—♂; Goyaz, State of Goyaz, Brazil. [Hebard Collection, Type no. 216.]

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<sup>5</sup> From τραχύς rough and Miopteryx.

Size medium (for the subfamily); form but little elongate. Head with the greatest depth contained one and one-half times in the greatest width across the eyes; cephalic face of occiput moderately declivous mesad with a distinct but low and rounded boss or swelling, laterad of which are shallow, broad, depressed areas, in which the antennae lay when directed caudad; occipital outline, when seen from the cephalic aspect, distinctly though not deeply arcuate-emarginate, very faintly bulbous on each side immediately mesad of the juxta-ocular sulci, the juxta-ocular lobes distinct, elevated, slightly acute with the apices rounded; ocelli relatively large, moderately prominent, well separated, placed in an inverted, subdepressed triangle, their vicinity without a frontal production; facial shield transverse, its greatest depth contained three times in the greatest width; dorsal margin of shield arcuate mesad and arcuate-emarginate laterad, ventrad of the antennal scrobes; ventral margin of the shield arcuate-emarginate; the curve of the median section of the dorsal margin continued ventro-laterad over the plate by low ridges: clypeus transverse, its surface elevated in a distinct transverse ridge, highest mesad: eyes prominent, inflated, in basal outline short ovate, close to the internal margin of each eye, and between it and the nearest antenna and ocellus, is placed a pair of well separated tubercles, the dorsal of which is more pronounced than the ventral: antennae with the joints, aside from the proximal three, moniliform, the proximal joint relatively large.

Pronotum in general form intermediate between that found in *Pseudomiopteryx* and *Eumioptryx*, the greatest width across the supra-coxal expansion contained about twice in the greatest length of the pronotum, which is nearly twice the least width, this being situated caudad of the middle of the shaft: collar with the lateral margins appreciably depressed ampliate, cephalic margin relatively narrowed, rounded, with a slight angle where it passes into the lateral section, thence the margins are straight and obliquely diverging to faintly before the middle of the shaft, where there is a distinct obtuse-angulate projection, the margins thence to the angle of the dilation divergent arcuate-emarginate; angles of the expansion obtuse, the immediate angles narrowly rounded; margins of the shaft regularly narrowing from the long expansion to the point of least width, thence faintly expanding to the arcuate caudal margin; lateral margins in the vicinity of the expansion minutely crenulate: collar occupying two-fifths of the length of the pronotum, its surface with a paired median tubercle and caudad of this a pair

of slightly more conical tubercles: shaft at cephalic third with a median bifid tubercle, the points of which are conical, immediately caudad of this is a pair of widely separated, low, conical tubercles, and about an equal distance from this pair, but on each lateral face of the shaft, is a pronounced conical tubercle, caudad of which and running dorso-caudad is a carinate ridge, stronger caudad, and fusing with a strumose area near the caudal margin, where there is a pair of elevated, longitudinally disposed projections, the crests of which are serrulate; median carinulation distinct but low caudad of the median paired tubercle on the collar; when seen from the side the region of the expansion is distinctly sellate, and the shaft less decidedly but still distinctly so.

Tegmina four and one-third times as long as the pronotum, its greatest width contained three and one-half times in the tegminal length, the greatest width at the distal third: costal margin appreciably ciliate, very briefly arcuate proximad and in distal third moderately arcuate to the rotundato-rectangulate apex, distal margin suturad of the apex broadly rounding into the sutural margin: marginal field coarsely reticulate; discoidal vein bifurcate at distal fourth; median vein bifurcate at middle; ulnar vein bifurcate near the base, the sutural ramus bifurcate immediately distad of the primary bifurcation, all rami of the median and ulnar veins reaching the sutural margin; anal vein arcuate in proximal half, thence straight oblique; axillary veins two in number, the sutural one bifurcate near its base; stigma distinct, slightly oblique, involving all veins from the median to the caudal ramus of the ulnar vein; areas between all veins of the discoidal field irregularly but rather openly and finely reticulate with cross-veins, which are less numerous in the immediate vicinity of the main veins than in the middle of the areas. Wings when in repose surpassing the apices of the tegmina by about the length of the collar of the pronotum, the apex rotundate-rectangulate: ulnar vein biramose, the proximal ramus diverging near the proximal third, the distal ramus diverging at about the distal third, the proximal ramus separated from the distal one by a considerable space, which narrows distad: discoidal field of the wing with the interspaces between the veins proximad with fairly regular cross-veins, which are much more oblique in some areas than in others, distad the cross-veins become irregular and anastomosing, except in the narrower fields where there is a general biserrate disposition.

Abdomen with the supra-anal plate transverse, triangularly produced mesad, moderately tectate, weakly carinate mesad, the apex

angulate; cerci moderately surpassing the subgenital plate, subequal in width, moniliform, slightly depressed, apical joint bluntly acuminate: internal genital plates which are apparent from the dorsum, lying in the hollow of the subgenital plate, are: on the right side a depressed, broad, narrowing and incurved plate, the apex of which is bluntly acuminate and slightly decurved; on the left and extending over to the center is a very broad, strongly depressed plate, which is in general obliquely subtruncate at the distal extremity and from the dorso-distal portion of which arises an erect, falcate process, which is curved to the left; ventrad of this plate lies a narrow, sinuato-falcate titillator, the apex of which is bluntly acuminate and reaches to the dextral internal plate: subgenital plate broad, depressed, saucer shaped, the margin sinuato-arcuate when seen from the dorsum, styles represented sinistrad by a strong acuminate appendage, the dextral equivalent of which is, possibly teratologically, a mere node.

Cephalic coxae subequal to the pronotum in length, subcompressed, external margin lamellato-carinate, all margins very finely and sparsely serrulate: cephalic femora nearly one and one-fifth times the length of the pronotum, distinctly compressed, the general form of the femur elongate sub-triquetrous, the greatest femoral depth contained about three times in the length of the same; dorsal margin of the femur lamellato-carinate, faintly sinuate; external face obsoletely granulose; ventro-external margin with five relatively short, conical spines, the distal one on the genicular lobe; ventro-internal margin with thirteen conical spines, which are arranged according to length in the following biserrate formula—(reading proximad) I I i I i I i I i I i; discoidal spines four in number, the second (reading proximad) much the longer; proximal section of the ventral surface with a median row of tubercles; cephalic tibiae (aside from the apical spur) half as long as the femora, moderately compressed, subcarinate on the extensor surface; external margin with a series of six distinct, adpressed spines on the distal half, these increasing in length distad and represented proximad by weak crenulations; internal margin with a continuous series of ten spines, which regularly increase in length distad; apical claw greatly elongate, falciform: cephalic metatarsi but little shorter than the tibiae, the remaining joints of the cephalic tarsi but slightly shorter than the metatarsi. Median and caudal limbs of medium length, relatively slender.

General color ochraceous-buff to ochraceous-tawny, very thickly and in general uniformly overlaid with a nebulose or punctulate

pattern of mummy brown to blackish-fuscous, which is in general so heavy that at first glance it is supposed to be the base color: eyes ochraceous-tawny overlaid with cloudings of blackish fuscous; ocelli zinc orange; antennae mummy brown on an ochraceous-tawny base: tegmina with the discoidal and all principal veins suturad of the same regularly checked with blackish fuscous, the base color of the veins being buffy, of the discoidal vein strongly ochraceous-buff, the general infumation of the tegmina weak mummy brown, with the immediate vicinity of the areal cross-veins hyaline; wings infumate similar to the tegmina, but proximad and on the radiate field more weakly so, the veins of the humeral field checked similar to those of the tegmina, the veins of the radiate field with a faint indication of similar but infrequent and attenuate checking; internal face of the cephalic coxae in general uniformly pale; internal face of the cephalic femora largely blotched with fuscous; cephalic tibiae with three rather indistinct bands of mummy brown; cephalic metatarsi with incomplete median and distal annuli of fuscous, remaining tarsal joints each uni-annulate, median femora obscurely tri- and caudal femora obscurely bi-annulate with fuscous clouds.

Length of body, 24.2 mm.; greatest width of head across eyes, 4; length of pronotum, 5.4; greatest width of pronotum, 2.8; length of tegmen, 23; greatest width of tegmen, 6.4; length of exposed portion of wing distad of tegmen, 2.4; length of cephalic femur, 6.1; length of caudal femur, 7.2.

The type of this interesting genus and species is unique.

**Eumiopteryx laticollis** Giglio-Tos.

1915. *Eumiopteryx laticollis* Giglio-Tos, Bull. Soc. Entom. Ital., XLVI, p. 141. [Paraguay; Province of Sara, Bolivia.]

Goyaz, State of Goyaz. One male. [Hebard Cln.]

This specimen agrees quite well with the generic and specific descriptions, although very slightly smaller than the original measurements for the sex. The individual has been much damaged about the wings and the median and caudal limbs, and in consequence certain venational features are not as clearly discernable as might be desired. The genus is not far distant from *Pseudomiopteryx*, and also close to the genus *Trachymiopteryx*, above described. The principal features of difference between the latter genus and *Eumiopteryx* are given under the diagnosis of *Trachymiopteryx*.

**CNEPHOMANTIS<sup>6</sup>** new name.

1915. *Miopteryx* Giglio-Tos, Bull. Soc. Entom. Ital., XLVI, p. 139. (Not *Miopteryxa* Saussure, 1869.)  
 1919. *Miopteryx* Giglio-Tos, Ibid., XLIX, p. 60. (Not *Miopteryx* Saussure, 1869.)

Giglio-Tos' recent reference of *Miopteryx granadensis* Saussure to a new genus *Promiopteryx*,<sup>7</sup> as its genotype, is completely in error. His procedure is completely nullified by the first (the present author's) fixation of the genotype of *Miopteryx* as *M. granadensis*.<sup>8</sup> Giglio-Tos was, doubtless, following Kirby's fixation of *rustica* as the genotype,<sup>9</sup> but Kirby's fixation was made a number of months posterior to the indication of *granadensis*. The name *Promiopteryx* is, consequently, a pure synonym of restricted *Miopteryx*. It is necessary, therefore, to have a new generic name for the genus called *Miopteryx* by Giglio-Tos, and we are here proposing *Cnephomantis*, selecting as genotype the species described as *Miopteryx fuscata* by Giglio-Tos.

***Cnephomantis<sup>10</sup> fuscatus* (Giglio-Tos).**

1915. *M[iopteryx] fuscata* Giglio-Tos, Bull. Soc. Entom. Ital., XLVI, p. 139. [Brazil.]

Espirito Santo. One male. [Hebard Cln.]

This specimen fully answers the brief description of Giglio-Tos, but has the pronotum faintly shorter (4.6 mm. instead of 5).

***Musoniella chopardi* Giglio-Tos.**

1913. *Miopteryx livida* Chopard, Ann. Entom. Soc. France, LXXXII, p. 759. (Nec *Thespis livida* Serville, 1839.) [Cuyaba, Matto Grosso, Brazil.]  
 1916. *M[usoniella] chopardi* Giglio-Tos, Bull. Soc. Entom. Ital., XLVII, p. 4. (Name for *livida* Chopard, nec Serville.)

Goyaz, State of Goyaz. One male. [Hebard Cln.]

This specimen is apparently inseparable from the insect erroneously determined as Serville's *Thespia livida* by Chopard, and later named *chopardi* by Giglio-Tos. The species is a rather aberrant *Musoniella*, showing, in its pronotal form and type of head, a tendency toward *Eumusonia*.

<sup>6</sup> From κνέφας *gloom* and μαντίς *Mantis*, in allusion to the shaded forest habitat of many of these small Neotropical Mantidae.

<sup>7</sup> Bull. Soc. Entom. Ital., XLVI, p. 138. (1915).

<sup>8</sup> Proc. U. S. Nat. Mus., XXVII, p. 566, (February, 1904).

<sup>9</sup> Syn. Catal. Orth., I, p. 274, (not earlier than November, 1904).

<sup>10</sup> We find that Chopard in his recent key to the species of the genus *Miopteryx* as understood by him (Ann. Soc. Entom. France, LXXXII, pp. 760 and 761, (1913)), has misplaced certain of the features of the species *rustica* and *argentina*; the number of tibial spines given for *argentina* does not agree with the comments of the describer, Saussure, while the color features given for the same form are not those originally described, but instead those found in *rustica*. We have, tentatively, separated as *ciliata* the Misiones male taken April 19, 1910, and recorded by us (Proc. Acad. Nat. Sci. Phila., 1913, p. 294), from the other specimens there referred to *rustica*. It is the more infumate individual mentioned in the comments in that paper.

**Musonia<sup>11</sup> costalis** new species. (Plate X, figs. 3 and 4.)

This species is a quite interesting one, being on the borderland between the genus *Musonia* (*Promusonia* Giglio-Tos<sup>12</sup>) and *Musoniella* Giglio-Tos, but apparently nearer the former assemblage. When compared with a St. Laurent cotype of Chopard's *Mionyx fuscescens*,<sup>13</sup> which is a member of the restricted genus *Musonia* and to which the new form is closely allied, *costalis* is seen to differ most strikingly in the deeper frontal shield, the shorter and broader pronotum, this showing *Musoniella* tendencies, the strongly infuscate marginal field of the tegmina, which has a strikingly marked pale line on the costal margin, and in the infuscate proximal sections of the transverse veins. The apex of the abdomen is lacking in the specimens seen. From *surinama*, the genotype, *costalis* is separated by a number of characters, the shorter pronotum and bicolored tegmina, with infuscate bases to the cross-veins, being sufficiently distinctive in *costalis* to separate readily the two forms.

TYPE.—♂ (presumably); Goyaz, State of Goyaz, Brazil. [Hebard Collection, Type no. 217.]

Size small: form moderately elongate. Head much wider than the pronotal expansion, when seen from the cephalic aspect strongly transverse, the greatest depth contained one and one-half times in the greatest width: occipital line between the juxta-ocular sulci straight transverse, between the juxta-ocular sulci and the eyes the margins is slightly declivous and developed into low obtuse-angulate lobes, from the side the longitudinal angle of the occiput is seen to be slightly acute: ocelli large, but little separated, placed in a reversed, slightly depressed triangle: facial shield strongly transverse, the greatest depth contained two and one-half times in the

<sup>11</sup> We have nothing to add to our previous remarks regarding the generic name *Paramusonia* (Proc. U. S. Nat. Mus., XXVII, p. 567, footnote, (1904)), the indicated type of which is *Thespis cubensis* Saussure. Relative to Giglio-Tos' genus *Diamusonia*, based on *Mantis parva* Drury, all we can say is that we do not know the genotype, but we have a male of his species *media* from Caparo, Trinidad (April, 1913, S. M. Klages, [Hebard Cln.]) before us. However, the generic name cannot be maintained, as in February, 1904, the present author first definitely designated (Proc. U. S. Nat. Mus., XXVII, p. 565, footnote), the type of *Thespis* Serville as *Mantis parva*. In consequence the name *Diamusonia* must give place to *Thespis* Serville. Our species *Paramusonia seclusa* (Proc. Acad. Nat. Sci. Phila., 1913, p. 295, fig. 7, (1913)), from Alto Pencosa, Argentina, has been referred by Giglio-Tos (Bull. Soc. Entom. Ital., XLVII, p. 6, (1916)), to his genus *Promusonia* (= *Musonia* Stål), but a re-examination of the type shows no reason for us to change our assignment, as it does not appear generically separable from *cubensis*, the genotype of *Paramusonia*.

<sup>12</sup> Vide Rehn, Proc. Acad. Nat. Sci. Phila., 1918, p. 167, footnote 27, (1918).

<sup>13</sup> Ann. Soc. Entom. France, LXXX, p. 333, (1911). [St. Laurent, La Foresterie and Nouveau Chantier, French Guiana.]

greatest width, dorsal margin of shield in general obtuse-angulate, slightly emarginate ventrad of the antennae; lateral margins slightly diverging dorsad; ventral margin faintly emarginate: eyes moderately prominent, not extending caudad of the general line of the head, in basal outline broad ovoid: antennae elongate, joint moniliform.

Pronotum moderately elongate, the greatest width across the expansion contained nearly four times in the length of the same: collar occupying about two-fifths of the pronotal length, the collar margins regularly diverging caudad to the moderately indicated expansion, the cephalic extremity of the pronotum regularly, but relatively narrowly, rounded; shaft of the pronotum appreciably broader than the collar, the margins almost subparallel, faintly diverging caudad, caudal margin subtruncate, all lateral margins sparsely but distinctly denticulate, expansion rounded; median carina distinct, weak cephalad on the collar; transverse sulcus well indicated; collar with lateral impressed areas throwing an elongate-elliptical dorsal medio-longitudinal area into relief.

Tegmina in length equal to about three times that of the pronotum: costal margin distinctly and regularly fringed with relatively short hairs, strongly rounding to the narrowly rounded but acute-angulate apex: marginal field narrow, proximal section weakly expanded, the field having in the broader proximal section a false longitudinal vein which forms a biseriate row of areolets: discoidal vein bifurcate at distal third, median vein biramose, ulnar vein biramose proximad; stigma nearly longitudinal, involving both distal rami of the ulnar vein and the proximal ramus of the median vein; axillary veins two in number, the distal one strongly sigmoid; inter-spaces between the veins of the discoidal field with false longitudinal veins, which make a biseriate disposition of the subrectangulate areolets. Wings surpassing the closed tegmina by about the length of the shaft of the pronotum, the apex slightly acute. Surface of the tegmina and of the exposed portion of the wings covered with short, plush-like, microscopic pile. Abdomen with the distal portion missing.

Cephalic coxae subequal to the pronotum in length, slender, strongly carinate, the margins unspined: cephalic femora equal to one and one-fourth the length of the coxae, slender, the depth hardly more than one-sixth of the length; ventro-external margin with five spines, one of which is genicular in position; ventro-internal margin with thirteen spines, which are arranged in the following formula (reading from the distal extremity) iIiIiIiIiIiIi,

of which the first, fifth and sixth of the longer spines are more robust than the others of that category; discoidal spines four in number, the distal one small: cephalic tibiae slightly less than half the length of the femora, external margin with five spines, with a large proximal diastema, internal margin with nine spines, increasing in length distad, apical claw large: cephalic metatarsi very slender, elongate, in length faintly longer than the tibiae (without claw), proximad sigmoid, remaining cephalic tarsal joints about two-thirds as long as the metatarsus. Median and caudal limbs very elongate and slender, the median femora subequal to the pronotum in length, the caudal femora almost half again as long as the median femora.

General color wood brown, overlaid with a finely punctulate pattern and clouding of bone brown to fuscous. Head with the ocellar region solidly, and the facial shield almost solidly, fuscous; eyes broadly blotched with fuscous on the ground color; antennae of the general color, weakly infuscate distad. Lateral portions of the pronotal shaft heavily blotched with fuscous. Tegmina snuff brown, the marginal field solidly clove brown, the costal margin narrowly but strikingly lined with light buff, this weakening distad; discoidal field with a very short section of each of the cross-veins adjacent to the longitudinal veins lined with clove brown; distad the longitudinal veins show a pencilling of clove brown. Exposed portion of wings colored similarly to the distal section of the tegmina. Limbs with the pale base color evident on the carinae of the coxae and femora; external face of the cephalic femora heavily clouded with fuscous, internal face with a heavy blotch of fuscous at the ungual groove; cephalic tibiae with three incomplete annuli composed of fuscous blotches.

Greatest width of head across eyes, 3 mm; length of pronotum, 5.6; greatest width of pronotum across expansion, 1.5; length of tegmen, 17.2; greatest width of tegmen, 4; length of cephalic femur, 4.9; length of caudal femur, 8.6.

The type of this species is unique.

**Eumusonia<sup>14</sup> livida** (Serville).

1839. *Thespis livida* Serville, Hist. Nat. Ins., Orth., p. 172. [Brazil.]

Goyaz, State of Goyaz. One male. [Hebard Cln.]

This specimen appears, in the light of Giglio-Tos' comments<sup>15</sup> and a re-examination of all of Serville's remarks, to be the same as,

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<sup>14</sup> Bull. Soc. Entom. Ital., XLVII, p. 8, (1916).

<sup>15</sup> Ibid., pp. 4, 5 and 8.

or extremely close to, Serville's species. The insect previously called *lvida* by Caudell<sup>16</sup> and the present author<sup>17</sup> is quite close, and we have identified it as *Eumusonia viridis* Giglio-Tos,<sup>18</sup> which was recently described from a single male from Salto Grande, State of São Paulo, Brazil. The species *viridis* has both green and brown chromatomorphs, the green apparently the more infrequent, but a single specimen of it being in the series of six individuals of the species now before us.

**Thesprotia fuscipennis** Saussure and Zehntner.

1894. *Thesprotia fuscipennis* Saussure and Zehntner, Biol. Cent.-Amer., Orth., I, p. 171. [Rio de Janeiro, Brazil.]

Espirito Santo. One male. [Hebard Cln.]

This specimen is fully typical of the species, but unfortunately has the supra-anal plate damaged, as did the male type, so that the character of this important part is as yet unknown.

CREOBOTRINAE.

**Acanthops erosa** Serville.

1839. *Acanthops erosa* Serville, Hist. Nat. Ins., Orthopt., p. 165. [Brazil.]

Bonito, State of Pernambuco. January, 1885. One female. [U. S. N. M.]

The present species, as we understand it, is quite close to *A. falcataria*, from which it readily can be separated by the narrower proximal section of the marginal field of the tegmina.

**Acanthops rehni** (Chopard).<sup>19</sup>

1913. *P[lesiacanthops] rehni* Chopard, Bull. Soc. Entom. France, 1913, p. 55, figs. 1 to 3. [Gran Chaco, Argentina.]

Goyaz, State of Goyaz. Two males. [Hebard Cln.]

This species is extremely variable in size in the male sex, as a series of nine males from Sapucay, Paraguay, now before us, shows. Females from the latter locality are appreciably larger than the type measurements.

The genus *Plesiacanthops*, which was erected for *tuberculata* Saus-  
sure and the present species, does not appear to us to be very sharply  
distinguished from true *Acanthops*, three species (*brunneri*, *falcata*  
and *erosa*) of which latter division are now before us. Chopard has

<sup>16</sup> Journ. N. Y. Entom. Soc., XII, p. 184, (1904).

<sup>17</sup> Proc. Acad. Nat. Sci. Phila., 1907, p. 158; Ibid., 1913, p. 205.

<sup>18</sup> Bull. Soc. Entom. Ital., XLVII, p. 8, (1916).

<sup>19</sup> This is the species recorded by us from Paraguay as *Acanthops sinuata* (Proc. Acad. Nat. Sci. Phila., 1907, p. 159). We are enabled to correct this determina-  
tion by the acquisition of true *sinuata* (= *falcata*) from the Guianas.

recently reduced *Plesiacanthops* from generic rank to that of a division or subgenus of *Acanthops*.<sup>20</sup>

As the male sex of this species has not been described, a few notes may be of value:

♂. Sapucay, Paraguay. December 8, 1909. (William Foster.) [Hebard Collection.]

In general form differing from the female in the same fashion as males of the other species of the genus *Acanthops* differ from the females of their respective species. Form moderately slender, in general depressed, tegmina and wings well developed, considerably surpassing the apex of the abdomen. Head with its greatest depth contained one and one-third times in the greatest width of the head across the eyes; facial shield slightly more transverse than in the female; ocelli large, subcontiguous, placed in a depressed triangle; eyes much more produced than in the female, the apices more decidedly mammillate; antennae setaceous, but slightly heavier than in the female: surface of head with faint traces of the asperities found in the female.

Pronotum relative smooth, no trace of asperities being present; greatest width across the expansion contained three and one-third times in the greatest length of the pronotum, subequal to the length of the collar; expansion moderately indicated, rounded, margins entire, no median carina or depression indicated. Tegmina of the usual type found in the males of this genus, mortui-foliaceous, greatest width (which is at distal fourth) contained three and one-third times in the tegminal length; costal margin bisinuate, the distal one shorter longitudinally than the proximal one; apex subrectangulate with the angle slightly produced lobulate. Wings infumate, with the transverse veins of the anterior humeral and more distinctly of the radiate, but not of the posterior humeral, fields whitish, forming a distinct pattern; greatest width of the wing contained one and three-quarters times in the greatest length of the same; apex narrowly rounded rectangulate, costal margin in general straight, at the distal fourth rounded and thence to the apex oblique truncate.

Supra-anal plate subtransverse rounded trigonal; cerci not longer than the subgenital plate, subdepressed, subequal in width, the distal joint as long as the two preceding it and truncate at the extremity; subgenital plate shovel-shaped, subtrigonal, the distal

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<sup>20</sup> Ann. Soc. Entom. France, LXXXV, p. 179, (1916).

extremity V-emarginate, the styles very brief. In structure the abdomen is lamellate as in the female, but in a slightly more reduced fashion; the dorsal black pattern is somewhat different; second segment with a transverse bar caudad, third segment with an arcuate figure distad taking up about two-thirds of its surface, fourth segment similarly but more completely occupied, fifth segment completely colored except that proximo-mesad the tone is weaker and brownish, sixth segment broadly bordered laterad and caudad with black, seventh segment distinctly and eighth and ninth segments faintly bordered caudad with blackish: venter of the abdomen with the structure of the segmental margins as in the male. Limbs of the type found in the female but much more slender.

Measurements of the described specimen: length of body, 41 mm.; greatest width of head across eyes, 5.8; length of pronotum, 11.5; greatest width of pronotum across expansion, 3.5; length of tegmen, 38.6; greatest width of tegmen, 11.5; length of cephalic femur, 10; length of caudal femur, 7.5.

#### VATINAE.

##### **Oxyopsis lobeter** Rehn.

1907. *Oxyopsis lobeter* Rehn, Proc. Acad. Nat. Sci. Phila., 1907, p. 159, figs. 3 and 4. [Sapucay, Paraguay.]

Goyaz, State of Goyaz. Three males. [Hebard Cln.]

The range of this species is now known to extend from the Misiones, northeastern Argentina north to Goyaz, Brazil.

##### **Oxyopsis oculata** new species. (Plate X, figs. 5, 6 and 7.)

A member of the section of the genus having produced and acute apices of the wings, and related to *O. rubicunda* (Stoll), from the Guianas, but differing from that species in the female sex in the less elongate pronotum, more decidedly trigonal sectional form of the shaft of the same, in the more produced (laterad) eyes, in the somewhat narrower marginal field of the tegmina, in the reduction in number and size of the hyaline areas of the discoidal field of the same, in the more acute tegminal apices, in the slightly more acuminate apices of the wings and in the relatively shorter median and caudal limbs. We are unable to compare the male very satisfactorily with *rubicunda*, owing to a lack of material of that sex of the older species, and the rather poor character of the available descriptions and figures of the same.

TYPE.—♀, Bonito, State of Pernambuco, Brazil. July 15, 1883. [United States National Museum.]

Size medium; form moderately slender. Head with the greatest width across eyes twice that across the expansion of the pronotum, when seen from the cephalic aspect the form of the head is depressed trigonal, the greatest depth contained one and five-eighths times in the greatest width across the eyes; occipital line subtruncate, rounding to the eyes laterad; region of the frons distinctly declivous, slightly concave; juxta-ocular sulci and the median pair of sulci well impressed on the frons; ocelli distinct, small, well separated, placed in a strongly curved line; facial shield transverse, its greatest depth contained one and two-thirds times in the greatest width, the dorsal outline of the plate transverse truncate mesad, obliquely truncate laterad, lateral margins vertical, ventral margin weakly arcuate-emarginate, surface of the plate with a few depressions laterad but no elevations excepting the dorsal and lateral margins, which are cingulate; clypeus and labrum transverse, eyes strongly produced laterad, when seen from the dorsum or from the cephalic aspect the production of the eyes is rectangulate, the apex submammilate, the cephalic surface of the eyes with a distinct convexity: antennae simple, setaceous, relatively short.

Pronotum elongate, the greatest width across the inflation contained slightly more than five times in the greatest length of the same, inflation little pronounced, the collar regularly narrowing from this to the rather narrowly rounded cephalic extremity, the shaft with the margins faintly concave, the least width of the shaft being at the median third, where the margins are briefly subparallel; lateral margins of the shaft distinctly dentate, the teeth sparser caudad, the margins of the collar closely denticulate, on the expansion proper the denticulations are few and weak; in section the shaft is strongly trigonal, median carina of the shaft fairly decided and continuous, collar with a medio-longitudinal impression, which is stronger caudad and there accompanied by a median carination, transverse impression well indicated.

Tegmina about one and one-fourth times as long as the pronotum, in form quite elongate elliptico-ovoid, the greatest width contained about three times in the greatest length; costal margin strongly arcuate proximad and distad but straight for the greater portion of its length mesad, apex subrectangulate with the immediate apex very narrowly rounded, sutural margin with the proximal third faintly arcuate, the distal fourth obliquely rounding to the apex: marginal field occupying about two-fifths of the width of the tegmen, gently broadening to the distal fourth, thence narrowing

to the apex; oblique rami in the marginal field nine in number, occasionally bifurcate; hyaline areolae of the proximal section of the discoidal and anal areas relatively few in number, not markedly conspicuous. Wings surpassing the apices of the tegmina by about one-third of the pronotal length, the exposed portion of the wings distinctly and regularly acute, the proximal width of the exposed portion contained one and one-third times in the length of the same section, the structure of the exposed area coriaceous; wing in general relatively long and narrow, its greatest width contained about twice in the total wing length. Abdomen incomplete.

Cephalic coxae about five-eighths as long as the pronotum, in section compressed triquetrous, dorsal (cephalic) margin with moderate spines, which are biseriate in length and somewhat irregular in disposition; cephalic femora equal to two-thirds of the pronotum, slender, little compressed; discoidal spines four in number; external margin with four large spines and a microscopic point on the genicular lobe; internal margin with fifteen spines, which are biseriately arranged for length as follows (reading proximad), IiiIiIiiIIiiIi: cephalic tibiae (exclusive of apical claw) slightly less than half as long as the cephalic femora, subcompressed, the claw heavy, external margin with eleven spines, which increase in length distad and proximad of which is a brief diastema, internal margin with sixteen to seventeen spines, which increase in length distad: cephalic metatarsi slightly shorter than the tibiae, faintly longer than the remaining tarsal joints. Median and caudal limbs elongate, moderately slender; median femora slightly longer than the cephalic coxae; caudal femora subequal in length to the shaft of the pronotum, caudal tibiae subequal in length to the femora; caudal metatarsi slightly shorter than the collar of the pronotum, the remaining tarsal joints faintly shorter than the metatarsus.

ALLOTYPE.—♂; same data as type. [United States National Museum.]

Differing from the description of the type in the following features. Size smaller; form more slender, as usual in males of this genus. Head with greatest width across eyes over two and one-half times that across the expansion of the pronotum, the form of the head more depressed, the greatest depth contained one and three-fourths times in the width across the eyes; occipital line more broadly transverse, hardly rounding to the eyes; ocelli large, closely placed in a triangle; facial shield strongly transverse, its greatest depth contained three times in the greatest width of the shield, the dorsal line of the plate

narrowly truncate mesad, broadly oblique truncate laterad, lateral margins truncate, distinctly converging ventrad, ventral margin decidedly arcuate-emarginate; eyes slightly more prominent than in the female; antennae lacking.

Pronotum very slender, its greatest width across the expansion contained more than five times in the length of the same, general form much as in the male, but the form of the inflation is more decided and the shaft is more strongly triquetrous, with the median carina decidedly indicated and the collar margins more subparallel; lateral margins very weakly crenulate, this more evident, though there far from decided, on the supra-coxal inflation. Tegmina missing. Wings two and one-fourth times as long as the pronotum, apices rotundato-rectangulate, these less coriaceous and less sharply differentiated than in the female. Abdomen with the apex missing.

Cephalic coxae with a single series of well-spaced spines; cephalic femora about five-eighths as long as the pronotum, armed as in the female; cephalic tibiae with one spine less on each margin than in the female. Caudal limbs missing.

Coloration of type and allotype have been completely destroyed by immersion in a liquid preservative, from which they were mounted. At present both specimens are ochraceous or brownish, with the eyes walnut brown. The wings of the male are hyaline with the tips brownish in the coriaceous section; the wings of the female are hyaline tessellate with yellow, which colors the vicinity of the cross-veins, the coriaceous section of the apices of the general tone. The tegmina of the female show sufficient contrast to warrant the assumption that the marginal field and probably a portion of the proximal section of the discoidal field were originally purplish or brownish, while the remainder of the discoidal and the anal fields were greenish or yellowish, the hyaline areas moderately contrasted.

*Measurements (in millimeters).*

	Greatest width of head (across eyes)	Length of pronotum	Greatest width of pronotum across inflation	Length of tegmen	Length exposed coriaceous portion of wing	Width exposed coriaceous portion of wing
♂, allotype	5.8	12.4	2.2	—	4.8	5.6
♀, type ....	8.6	23.2	4.2	29.5	7	5
		Length of cephalic femur	Length of median femur	Length of caudal femur		
♂, allotype .....		8.5	8	...		
♀, type.....		15.7	13.6	18		

The type and allotype of this species are the only specimens we have examined.

**Parastagmatoptera glauca** new species. (Plate X, figs. 8 and 9.)

An interesting species related to *P. theresopolitana* and *pellucida* Giglio-Tos<sup>21</sup>, agreeing with those species in the non-tessellate wings and the subpellucid, non-fenestrate wings. From both of these species, however, *glauca* differs in its much smaller size, more weakly denticulate lateral margins of the pronotum, the narrower marginal field of the tegmina and impunctate stigma, and, in addition, from *theresopolitana* in the absence of black from the wings and cephalic coxae and in the unmarked bases of the larger internal spines of the cephalic femora.

**TYPE.**—♀; Colonia Hansa, State of Santa Catharina, Brazil. [Hebard Collection, Type no. 221.]

Size small; form somewhat more robust than usual in the same sex in this genus. Head depressed trigonal in form, with the greatest width one and one-half times as great as the greatest depth of the same; occipital outline sinuato-truncate between the juxta-ocular sulci, juxta-ocular section (laterad of the sulci) moderately arcuato-bullate, sulci moderately impressed, straight, vertical for the greater portion of their length; face hardly concave; ocelli small, distinct, placed in a very much depressed triangle; facial scutellum strongly transverse, the greatest depth contained about two and one-half times in the greatest width, dorsal margin very broadly rounded obtuse-angulate mesad and faintly emarginate laterad, dorso-lateral angles nearly rectangulate, ventral margin shallowly arcuato-emarginate, surface faintly excavate; eyes well rounded in outline when seen from the cephalic aspect, in basal outline subovoid-pyriform, flattened caudad; antennae filiform, in length slightly shorter than the pronotum.

Pronotum moderately robust, greatest width of supra-coxal dilation contained three and one-third times in the greatest length; collar broad, margin regularly expanding from the strongly arcuate cephalic margin; supra-coxal dilation hardly differentiated from the collar, passing regularly by expansion from one to the other, broadly rounded and as evenly narrowing caudad to the shaft, the caudal half of which is subequal in width, caudal margin truncate mesad, well rounded laterad, entire lateral margins closely denticulate; median line on collar and cephalic section of shaft

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<sup>21</sup> Bollett. Mus. Zool. Anat. Comp. Torino, XXIX, no. 684, pp. 20, 21, (1914.)

as a fine sulcation; surface with numerous scattered fine asperities; transverse sulcus truncate mesad, arcuato-rectangulate laterad.

Tegmina surpassing the apex of the abdomen, in shape ovoid, one and four-fifths times as long as the pronotum, broad, the greatest width about two-fifths of the greatest length, marginal field opaque, discoidal and anal fields translucent; costal margin strongly and regularly arcuate, sutural margin largely straight, rounding to the rotundato-rectangulate apex; marginal field forming about one-third of the total tegminal width, oblique veins of the same quite irregular and much forked and fused; discoidal sectors five to six in number, oblique, equidistant, moderately sigmoid, transverse nervures moderately regular, irregular false sectors present toward the sutural margin; anal vein moderately arcuate, joining the sutural margin slightly proximad of the middle, anal field with axillary veins disposed similarly to the discoidal sectors; stigma distinct, close to the humeral trunk proximad of the middle, longitudinal, uncolored. Wings reaching to the tips of the tegmina, subhyaline translucent. Abdomen depressed, broad.

Supra-anal plate produced mesad into a linguiform process which is subequal to the proximal width of the plate; subgenital plate strongly compresso-rostrate distad, this section deep. Cephalic coxae faintly longer than the shaft of the pronotum, faintly arcuate distad, dorsal margin biseriate denticulate, the larger series six in number and recurved, the smaller ones minute and more numerous, the numbers between the larger denticulations variable, ventral margin sparsely serrulato-denticulate, the external margin similar but more closely armed, internal face with a few low tubercles parallel to the dorsal margin; cephalic femora faintly shorter than the pronotum in length, greatest depth contained three and one-half times in the greatest length, subcompressed, dorsal margin straight, ventro-external margin with four large spines, slightly longer proximad, lateral genicular lobe with a single rather short spine, ventro-internal margin with thirteen spines which are biseriate in length, the formulae (reading distad) being I<sub>1</sub>I<sub>1</sub>I<sub>1</sub>I<sub>1</sub>I<sub>1</sub>I<sub>1</sub>I<sub>1</sub>, discoidal spines four in number; cephalic tibiae (exclusive of the apical claw) subequal to one-half the femoral length, external margin armed with seven spines increasing in length distad, a considerable unarmed diastema present proximad, internal margin with eleven spines increasing in length distad, apical claw quite long, gently arcuate; cephalic metatarsi subequal to the remaining tarsal joints in length. Median and caudal limbs elongate, tibial carinations weak.

General color (undoubtedly discolored in drying and probably green in life) ochraceous-tawny. Head chestnut-brown (doubtless discolored). Tegmina yellowish-glaucous, mytho-green distad, the latter probably the natural color of the whole tegmen. Wings hyaline, faintly yellowish. Cephalic femoral and tibial spines weakly tipped with black or pitch black.

Length of body, 28.8 mm.;<sup>22</sup> length of pronotum, 11.2; greatest width of supra-coxal expansion of pronotum, 3.4; length of tegmen, 20.5; greatest width of tegmen, 8.5; greatest width of marginal field of tegmen, 2.6; length of cephalic coxa, 8.8; length of cephalic femur, 10.5; length of caudal femur, 10.5; length of caudal tibia, 10.

The type is unique.

#### PHASMIDAE.

##### PYGIRHYNCHINAE.

###### **Ceroys perfoliatus** (Gray).

1835. *C[ladomorphus] perfoliatus* Gray, Synops. Spec. Ins. Fam. Phasm., p. 15. [Brazil.]

Rio de Janeiro. One female. [M. C. Z.]

This specimen is perfectly typical of the species, but shows some difference from the descriptions in having a second pair of tubercles on the mesonotum cephalad of the usual pair, the extra ones being developed as a strong spine (right side) or as a short conical tubercle (left).

The species has been previously recorded from this locality.

##### PSEUDOPHASMINAE.<sup>23</sup>

###### **Olcypoides tithonus** (Gray).

1835. *P[hasma] tithonus* Gray, Synops. Phasm., p. 23. ["East Indies" (in error).]

Espirito Santo. One male. [Hebard Cln.]

<sup>22</sup> Approximate, as the apex of the abdomen is twisted out of its normal plane.

<sup>23</sup> We have examined the unique type of *Phasma radiatum* Scudder (Proc. Bost. Soc. Nat. Hist., XXVII, p. 279, (1875)), and find that Redtenbacher (Insektf. Phasm., p. 105, (1906)), has properly placed this species in the genus *Stratocles*, and has correctly interpreted the features of the species. Although the material examined by Redtenbacher was of the female sex and the type is a male, the characters assigned by him are all those of the type, except for relatively minor ones of the abdominal and limb coloration, and these may be sexual features. In the type the apex of the abdomen is solidly blackish, without any indication of the lateral ferruginous and the marginal greenish mentioned by Redtenbacher. The caudal tibiae in the type have the dorsal surface lined with ferruginous except proximad and distad, where the general blackish-color is found. Redtenbacher says the tibiae are uniformly fuscous-black, along with the tarsi. The caudal tarsi are pale ferruginous in the type, while those of the other limbs are as described by him.

Rio de Janeiro. November. Two males, two females. [U. S. N. M.]

This beautiful species has been reported from as far north as Cayenne, south to Santos, Brazil. The Espírito Santo male has the black areas on the antennae more extensive than in the other specimens.

**Paraphasma marginale** Redtenbacher.

1906. *P[araphasma] marginale* Redtenbacher, Die Insektenfam. Phasm., I, p. 115. [Santos, Minas Geraes, Rio de Janeiro, and Goyaz, Brazil; Paraguay.]

Pixe Boi, east of Pará, State of Pará. (H. B. Merrill.) November to December, 1907. One female. [A. N. S. P.]

Goyaz, State of Goyaz. Two males, three females. [Hebard Cln.]

Corumbá, State of Matto Grosso. April (highland). (H. H. Smith.) Three males, one female. [U. S. N. M.]

This species, or at least individuals which we feel compelled to refer to this species, exhibits a most extraordinary amount of variation in structure and, to a certain extent, in coloration. We have before us in addition to the specimens recorded above, individuals of both sex from Sapucay, Puerto Cantera and Alto Paraná, Paraguay, and Misiones, Argentina, most of which already have been reported. These specimens show appreciable variation in the relative width of the head, in the relative size of the ocelli, in the relative length of the tegmina, in the acuteness and degree of development of the tubercle of the tegmina and in the coloration of the wings and the limbs. The anterior field of the wings may have the coloration strongly bicolored, blackish and pea green, or the ground color pale with the vicinity of the longitudinal veins lined with fuscous; the posterior field of the wings may be uncolored infumate with the principal veins well lined, while in the other extreme the greater portion of the field is pale with the distal section and part of the margin infumate, the veins in the pale area non-infumate. The limbs may be blackish or mummy-brown. At first examination it appears that two distinct species are present, but when all the available material is examined it is found that there is only a partial correlation of these characters, one male from Sapucay, for instance, being in every other way characteristic of one of the extremes analyzed above, but having the broad head of the other extreme, while the Peixe Boi individual is in most of its features intermediate between the two types. The genitalic features of all of the specimens seem to be identical for the respective sexes.

**Damasippus pulcher** Redtenbacher.

1906. *Damasippus pulcher* Redtenbacher, Die Insektenfam. Phasm., I, p. 148. [Espirito Santo, Brazil.]

Espirito Santo. One female. [Hebard Cln.]

This specimen has the greenish-yellow on the head less clearly defined than the original description would lead one to suppose it is in the type, which was also a female. The caudal femora are also more clear greenish than "flavo-ferruginous" as described. In all the other features, however, the present individual is typical.

**Prisopus horstokkii** De Haan.

1842. *P[hasma] (Prisopus) horstokkii* De Haan, Verhandl. Natuurl. Geschied., Bijdragen Kenn. Orth., p. 113, pl. XII, fig. 1. ["Cape of Good Hope" (erroneous).]

Rio Verde, State of Goyaz. One female. [Hebard Cln.]

Gahan's recently described *P. fisheri*<sup>24</sup> is supposed to differ from *horstokkii* in the presence of triangular processes on the lateral sections of the metathorax, but our material, which fully agrees with the description and figure of *horstokkii*, possesses the same structures, yet differs from the description of *fisheri* in other features, as the color of the ventral surface of the body and of the membranous section of the wings. It is evident that either *horstokkii* possesses such appendages on the metathorax or the coloration given for certain areas, which are as a rule of fairly fixed character, varies in *fisheri*. We feel that the first explanation is more likely the correct one, in which conclusion we are strengthened by an examination of other material of the genus. The metathoracic processes are hidden from above in spread specimens and this may explain their oversight by previous workers.

This is the first Brazilian record of the species.

## HETERONEMINAE.

**Dyme straminea** new species. (Plate X, figs. 10 and 11.)

This remarkably elongate and attenuate species can be distinguished by the excessively elongate and straw-like limbs, the slenderness of the body and the distinct medio-longitudinal fuscous line, which reaches from the inter-antennal region to the proximal portion of the abdomen, where it becomes obsolete. Of the species treated by Brunner the only one to which it appears at all allied is *D. incolumis*, from Vera Paz, Guatemala, and from the description of which it differs in the male (the only sex in hand) having the ventro-lateral margin of the penultimate (eighth) dorsal abdominal segment

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<sup>24</sup> The Entomol., XLV, p. 54, fig., (1912).

straight, its angles rectangulate, instead of rounded with the angles obtuse, in the ultimate (ninth) dorsal abdominal segment of the same sex being two and one-half times as long as broad, instead of equally long and broad, and in the subgenital operculum falling distinctly short of the apex of the dorsal penultimate (eighth) segment, instead of reaching to the apex of the same as in *incolumis*.

TYPE.—♂; Goyaz, State of Goyaz, Brazil. [Hebard Collection, Type no. 471.]

Size moderately large: form very elongate and slender, bacilliform. Head with its length nearly one and one-half times that of the pronotum, the greatest width across the eyes contained twice in the length of the head, the caudal section of the head, i. e. that caudad of the eyes, subequal in width, slightly narrower than the width across the eyes: ocelli absent: eyes very short oval in basal outline, hardly prominent when seen from the dorsum: antennae not complete, in length certainly exceeding the head, pronotum and mesonotum as remaining portions show.

Pronotum no wider than the caudal section of the head, the length about twice the median width, the cephalic half faintly narrower than the caudal half; cephalic margin faintly arcuate emarginate, caudal margin very slightly arcuate convex; median transverse indentation pronounced, medio-longitudinal sulcus indicated cephalad. Mesonotum about three times as long as the combined length of the head and pronotum, slender, faintly widening caudad, the width elsewhere uniform, hardly greater than that of the head, strongly arcuate in transverse section, near each lateral margin with a continuous but low carina; caudal margin weakly arcuato-emarginate. Metanotum, including the median segment, four-fifths as long as the mesonotum, in general form and sculpture similar to the mesonotum: length of the median segment contained over three and one-half times in the length of the remainder of the metanotum; caudal margin of the median segment arcuato-emarginate. Meso- and metasternum with paired, prominent lateral carinae prominent throughout their length.

Abdomen slightly longer than the combined length of the head and thoracic segments, slender, faintly thickened and enlarged at the sutures between the segments; first to seventh joints distinctly elongate, the second to fourth joints slightly the longer; eighth dorsal segment slender, faintly shorter than the ninth segment, distinctly infolded ventro-distad; ninth dorsal abdominal segment three-fourths as long as the eighth dorsal abdominal segment,

slender, subcompressed, tectate, carinate dorsad, distal extremity broadly V-emarginate, the margin thickened, the ventral surface of the same supplied with a heavy covering of small, imbricate, adpressed denticulations, when seen from the side the segment has the lateral margins straight, the angles rectangulate; subgenital operculum moderately compressed, rostrate distad, reaching to the distal third of the eighth dorsal abdominal segment, ventral surface with a medio-longitudinal carina on distal section: cerci simple, slightly incurved, subequal in width, their length equal to about one-third that of the ninth dorsal abdominal segment, apex blunt, that section covered with recurved, chaetiform spinulations.

Limbs extremely slender, attenuate, multicarinate. Cephalic femora almost twice as long as the metanotum (including the median segment), cephalic flexure pronounced and slightly sigmoid when seen from the dorsum: cephalic tibiae surpassing the femoral length by about twice the length of the head: cephalic metatarsi nearly twice as long as the length of the remaining tarsal joints united. Median femora equal to the length of the metanotum and the first and half of the second abdominal segments, very slightly bowed: median tibiae surpassing the femoral length by about the length of the pronotum: median metatarsi hardly longer than the remainder of the median tarsal joints united. Caudal femora reaching to about the apex of the fifth dorsal abdominal segment, almost imperceptibly arcuate: caudal tibiae surpassing the femoral length by about the length of the head: caudal metatarsi slightly longer than the remaining tarsal joints united. Arolia relatively large in all tarsi.

General color ranging from primuline yellow on the thoracic segments to dull wax yellow on the abdomen, passing through buckthorn brown to cinnamon-brown on the limbs. Eyes buckthorn brown; antennae mar's brown proximad, passing into fuscous distad. Head with paired postocular lines of mummy brown; these are discontinuously indicated on the meso- and metanotum and the proximal abdominal segment. A medio-longitudinal line of blackish fuscous extends continuously from the inter-antennal region to the sixth abdominal segment, not strongly indicated distad of the second abdominal segment.

Length of body, 113.5 mm.; length of head, 5; length of pronotum, 3.6; length of mesonotum, 26; length of metanotum (including median segment), 21.2; length of median segment, 4.4; length of cephalic femur, 43.5; length of cephalic tibia, 54.2; length of median femur, 32; length of caudal femur, 37.

In addition to the type we have before us a paratypic male, differing from the type solely in being slightly smaller.

PHIBALOSOMINAE.

**Bactridium grande** new species. (Plate X, fig. 12.)

A very striking new species allied to *B. dentipes* Redtenbacher, *emortuale* (Saussure) and *gracile* (Serville), but differing from all in the much shorter operculum of the female, which does not exceed the apex of the body, and also from the individual species as follows: from *dentipes* in the larger size, in the presence of very decided teeth on the dorsal and ventro-external margins of the cephalic femora, in the relatively longer limbs and in the different spination of the median and caudal limbs; from *emortuale* in the relatively longer limbs and in the absence of lobes on the proximal section of the ventral margins of the median femora; and from the poorly defined *gracile* in the much greater size and the more spinose ventral carinae of the median femora.

TYPE.—♀ ; Santa Catharina, Brazil. [Hebard Collection, Type no. 401.]

Size very large; form elongate and as usual in the genus. Head nearly twice as long as the pronotum, subovate in outline when seen from the dorsum, the greatest width (across the eyes) contained one and one-half times in the length of the head; occiput subdeplanate, the caudal margin of the same weakly produced mesad and shallowly divided into two by a faint longitudinal impression, laterad of which production there is another faint impression in the same margin, the lateral margins of the occiput moderately and regularly converging caudad from the eyes; no apparent ocelli present; eyes moderately produced, subglobose; antennae missing except for the two proximal joints, the first of which is quite slender and elongate, depressed.

Pronotum moderately longitudinal, slightly broader caudad than cephalad; cephalic margin obtuse-angulate, strongly elevato-cingulate; lateral margins shallowly arcuate-emarginate cephalad, subparallel caudad; caudal margin arcuato-emarginate; cephalic intermarginal sulcus with a distinct median and paired lateral fossae, median transverse impression well marked mesad, obsolete laterad. Mesonotum about three times as long as the head and pronotum together, non-carinate. Metanotum (with median segment) about two-thirds as long as the mesonotum, of similar structure; median segment subequal in length to the metanotum proper.

Abdomen with all segments longitudinal, those from one to five regularly increasing from twice to four times as long as wide, sixth segment slightly more than three times as long as wide, seventh segment strongly compressed and three times as long as wide, eighth segment elongate quadrate, one and one-half times as long as wide, ninth segment (anal segment) with median length faintly more than greatest width, lateral margins moderately expanding caudad, caudal margin obtuse-angulate emarginate, median line finely sulcate; distal margin of the fourth dorsal segment transversely tuberculate mesad; supra-anal plate small, placed in the emargination of the anal segment, the margin arcuate; cerci slender, styliform, acuminate, but faintly surpassing the lateral portions of the anal segment; sixth ventral segment produced ventrad into a distinct bidigitate process, which is subdepressed, with the processes well separated by a deep median incision and converging distad; subgenital operculum large and broad, but not surpassing the apex of the abdomen, the distal margin subobtusely rounded, the surface of distal portion wrinkled rugulose, a distinct median carina distad. Prosternum slightly transverse, trigonal.

Cephalic femora subequal in length to that of the head, pronotum and mesonotum combined, proximal flexure decided and strongly narrowed, dorso-internal margin strongly and ventro-external margin distinctly lamellate developed and serrato-dentate, dorso-external margin not elevated but with six spaced dentations, genicular lobes spiniform; cephalic tibiae damaged. Median femora subequal in length to the three proximal abdominal segments, very faintly bowed, dorso-internal margin with a high trigonal recurved spiniform lobe at the proximal third, distad of which there are from five to six similar but very much smaller tooth structures, dorso-external margin with four similar small structures on distal two-thirds, ventro-external margin with nineteen similar teeth, ventro-internal margin with eighteen to twenty teeth, ventro-median carina with five to six teeth; median tibiae slightly longer than the median femora, all the margins finely serrato-dentate, the dorso-internal mesad with an elongate but rather low lobe ending distad in a spine, all the carinae suberistate distad and there with several fine teeth; median metatarsi subequal in length to the remaining tarsal joints, dorsad with a low but distinct median carina. Caudal femora slightly longer than the median femora, of similar character, the margins armed with serrato-dentations of a minor grade, as follows—dorso-external, four to eleven; dorso-

internal, six to fifteen; ventro-external, twenty to twenty-six; ventro-internal, twenty-one to twenty-nine; ventro-median carina, ten to eleven, no lobes present on the margins; genicular lobes spinose, subdepressed; caudal tibiae faintly shorter than the four proximal abdominal segments, the margins armed and developed as on the median tibiae; caudal metatarsi slightly longer than the remaining tarsal joints, evenly cristato-lobate dorsad, the distal extremity of the lobe with three to six minute teeth.

General coloration pinkish-cinnamon to kaiser-brown (unquestionably green or a more uniform brownish in life), the femora, particularly the caudal pair, weakly washed with dark livid-purple, while the tibiae are in part weakly light fluorite-green to dull malachite-green, this probably a trace of the original coloration.

Length of body, 264.6 mm.; length of head, 12.5; length of pronotum, 7.3; length of mesonotum, 59.5; length of metanotum (including median segment), 40.3; length of median segment, 19.7; length of cephalic femur, 74; length of median femur, 56.5; length of median tibia, 64.3; length of caudal femur, 59.4; length of caudal tibia, 77.5; length of operculum, 24.2.

The type of this striking species is unique.

#### ACRIDIDAE.

##### PROSCOPINAE.

###### **Proscopia scabra** Klug.

1820. *Proscopia scabra* Klug, in Nees ab Esenbeck, Horae Physicae Berolin., p. 19, pl. III, fig. 2. [Pará, Brazil.]

Upper Amazon. Two females. [M. C. Z.]

Brunner has recorded this species from "Provincia Alto Amazonas."

###### **Corynorhynchus hispidus** Klug.

1820. *Proscopia hispida* Klug, in Nees ab Esenbeck, Horae Physicae Berolin., p. 20, pl. III, fig. 5. [Bahia, Brazil.]

Rio de Janeiro. One male, one female. [M. C. Z.]

The female specimen is somewhat smaller than the original measurements and is minus the caudal limbs, but it is clearly the opposite sex of the male now before us, and, when compared with a pair of *C. radula*, their close relationship to the latter species is very apparent. The specimens measure as follows:

	♂	♀
Length of body.....	62.8 mm.	83.5 mm.
Length of head.....	9.3 "	14 "
Length of rostrum .....	1.8 "	4.4 "
Length of pronotum.....	17.3 "	19.5 "
Length of cephalic femur.....	10.3 "	11.1 "
Length of caudal femur .....	23 "	—
Length of caudal tibia.....	25 "	—

The form of the rostrum of the female is as figured by Brunner. The apex of the male abdomen is more short clavate than in the male of *radula*, the supra-anal plate is less sculptured and the subgenital plate less produced, but the general form of the region is very similar.

The species was previously known only from Bahia.

ACRIDINAE (*Truxalinae* of authors).

**Peruvia nigromarginata**<sup>25</sup> (Scudder). (*Toropteris minutus* of most authors.)

1875. *Machaerocera nigromarginata* Scudder. Proc. Boston Soc. Nat. Hist., XVII, p. 268. [Eastern slopes of the Peruvian Andes.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

This is the most eastern locality for the species. The previous record from Rio de Janeiro, made by Bruner,<sup>26</sup> refers to *P. ensicornis* (Rehn), which is an east coast form.

OMMEXECHINAE.

**Spathalium klugii** (Burmeister).

1838. *O(mmexecha) klugii* Burmeister, Handb. der Entom., II, abth. II, pt. I, p. 655. [Brazil.]

Goyaz, State of Goyaz. Three males, one female. [Hebard Cln.]

These specimens are inseparable from the female from Chapada, Matto Grosso, previously recorded by us, first as *cyanopterum*<sup>27</sup> and afterward correctly as *klugii*.<sup>28</sup>

The species is known from Bahia, Santarem, Goyaz and Chapada, Brazil.

LOCUSTINAE (*Acridinae* of most authors).

**Diedronotus laevipes** (Stål).

1878. *T[rapidonotus] laevipes* Stål, Bihang till K. Svenska Vet.-Akad. Handl., V, no. 9, p. 20. [Sao Leopoldo, Brazil; Argentine Republic.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

This is the most northern as well as the extreme northeastern record for this species, which ranges south into northern Argentina and west to Santa Cruz de la Sierra, Bolivia (Bruner).

<sup>25</sup> For remarks on this name see Rehn, Trans. Amer. Entom. Soc., XLII, p. 280, (1916).

<sup>26</sup> Ann. Carneg. Mus., VIII, p. 23, (1911).

<sup>27</sup> Proc. U. S. Nat. Mus., XXXVI, p. 110, (1909).

<sup>28</sup> PROC. ACAD. NAT. SCI. PHILA., 1913, p. 329; footnote, (1913).

**Zoniopoda fissicauda** Bruner.

1906. *Zoniopoda fissicauda* Bruner, Proc. U. S. Nat. Mus., XXX, p. 653.  
[Sapucay, Paraguay.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

This specimen, which is clearly the present species, has lost some of the brilliancy of its original coloration, as if it had been exposed to the continued action of a strong killing medium. It is slightly smaller than the measurements of the same sex given by Bruner. The two localities are the only ones from which the species is known.

**Zoniopoda collaris** Bruner.

1911. *Zoniopoda collaris* Bruner, Ann. Carneg. Mus., VIII, pp. 58, 60.  
[Chapada, Matto Grosso, Brazil.]

Rio Verde, State of Goyaz. Three males. [Hebard Cln.]

These specimens agree with the original description of the unique type except that all the pale areas are slightly pinkish, which, however, we feel is not normal but due to chemical action of a killing medium. The species is known only from the two localities given above.

**Diponthus bilineatus** new species. (Plate X, figs. 13 and 15.)

A close ally of *D. crassus* Bruner (plate X, figs. 14 and 16), from northeastern Argentina and eastern Paraguay, differing in the slightly more elongate form (for the sex), in the slightly less declivous fastigium, in the proportionately more longitudinal pronotum, the more distinctly angulate caudal margin of the disk of the same, in the slightly more elevated medio-longitudinal section of the metazona, in the more oblique caudal margin of the lateral lobes of the pronotum, in the more elongate, narrower tegmina, in the more elongate male cerci, which surpass the apex of the supra-anal plate and have their distal extremity distinctly decurved, and in the coloration—the tegmina being non-reticulate but with the humeral trunk and the anal angle contrastingly lined with yellow on an olive-green ground, the caudal femora pinkish with a weaker medio-longitudinal line on the external face and with the caudal tibiae lacking the dark lining of *crassus* and reddish on the internal face, while the wing is more greenish hyaline, without the bluish wash seen in *crassus*.

TYPE—♂; Santa Catharina, Brazil. [Hebard Collection, Type no. 411.]

Size large (for the genus); form as in *D. crassus*; surface of the head, pronotum and pleura strongly and closely cibroso-punctate. Head with the vertex and fastigium considerably declivous, nar-

rowly rounding into the slightly retreating facial line; interspace between the eyes broad, but little narrower than the fastigium; fastigium distinctly broader than long, truncate cephalad, very shallowly and broadly excavate; frontal costa dorsad nearly as wide as the vertex interspace between the eyes, regularly narrowing ventrad until on the lower face, at the ventral third of the face, it is less than one-half the width at the fastigio-facial region, subobsolete in the vicinity of the clypeal suture, closely and deeply cibroso-punctate dorsad and ventrad, excavato-sulcate mesad, lateral margins well indicated; lateral facial carinae arcuate, converging to the clypeal base: eyes quite prominent, subovate in outline, faintly flattened ventrad, in depth about one and one-half times that of the infraocular portion of the genae: antennae about two and one-third times as long as the pronotal disk, thick, apex moderately acuminate.

Pronotum of moderate length, the greatest caudal width of the disk contained one and one-third times in the greatest dorsal length of the same; in section the prozona of disk is arcuate, the metazona low tectate; cephalic margin of disk broadly and shallowly angulato-emarginate mesad, caudal margin of disk regularly obtuse-angulate with the immediate angle narrowly truncate; prozona slightly shorter than the metazona; median carina obsolete, being but faintly indicated by strumosities between the punctures, lateral angles not at all indicated on the prozona, well marked but not carinate on the metazona; transverse sulci deeply impressed, the median one slightly weaker on the dorsum than the other two: lateral lobes with their greatest depth subequal to the greatest dorsal length of the same; ventro-cephalic angle of lobes obtusely rounded, ventral margin obliquely truncate cephalad, thence truncate to the broadly rounded ventro-caudal angle, caudal margin obliquely subconcave. Tegmina reaching to but not surpassing the apex of the abdomen; costal margin regularly broad arcuate, sutural margin nearly straight, apex rather narrow, obliquely subtruncate; principal longitudinal veins decided. Wings reaching to the apices of the tegmina. Prosternal spine distinctly compressed, directed moderately caudad, blunt; interspace between the mesosternal lobes faintly longitudinal, the internal face of the lobes arcuate; interspace between the metasternal lobes slightly transverse.

Furcula developed as broad, depressed, well separated, acute trigonal lobes, the external margin of which is straight, the internal concave: supra-anal plate escutcheon-shaped, slightly constricted proximad, of the same form found in *D. crassus*, a median rectangu-

late transverse strumosity placed at distal third, the adjacent portion of the lateral margins with a similar thickening, the section of the plate distad of these elevations deflected from the plane of the major portion of the plate; medio-longitudinal sulcus and its bounding carinae indicated on the proximal two-thirds of the plate, this area widening proximad: cerci straight, styliform, tapering, the extremity moderately decurved and incurved, apex acute: subgenital plate moderately full, faintly compressed dorso-proximad, free margin weakly and broadly emarginate mesad.

Cephalic and median femora moderately robust. Caudal femora equal to slightly more than one-half the body length, similar to the type found in *crassus* but more slender; caudal tibiae with ten spines on the external margin.

General color blackish-green, varied with shades of yellow-ocher, pinkish red and purplish. Head with a broad medio-longitudinal bar of vinaceous-rufous covering occiput, vertex, fastigium and face, except lateral margins of frontal costa, passing into the general color on the genae; eyes tawny-olive; antennae dark slate-purple, becoming dull brownish distad. Pronotum with a medio-longitudinal bar of ochraceous-tawny, sharply delimited from the general color, a narrow cephalic margin on the lateral lobes amber-yellow, almost all of the metazona on the lateral lobes and a lateral section of the dorsum of the same olive-ocher. Tegmina with the humeral trunk and vicinity of the anal vein lined with olive-yellow; veins of the general color on a greenish hyaline ground. Wings hyaline, faintly washed with greenish toward the costal margins, principal veins finely colored with the general shade. Abdomen tawny-olive with the dorsum, aside from a continuous, narrow, medio-longitudinal bar of the basic abdominal color, washed with blackish-green, this disappearing ventro-laterad; apex and internal margin of the furcula, strumosities of the supra-anal plate and apices of cerci black. Limbs largely vinaceous-russet; caudal femora with a median longitudinal line of blackish on proximal portion of the paginae, internal face pale carmine, with three transverse areas of blackish green—one premedian, one postmedian and the other covering the internal genicular area, external genicular area olive-citrine; caudal tibiae on the external face colored the same as the femora, on internal face pale carmine, external spines pale greenish tipped with black, internal spines black.

Length of body, 31 mm.; length of pronotum, 7; greatest caudal width of pronotal disk, 5.2; length of tegmen, 22; length of caudal femur, 16.8.

The type is unique.

***Chlorohippus roseipennis* Bruner.**

1911. *Chlorohippus roseipennis* Bruner, Ann. Carneg. Mus., VIII, p. 88.  
[Chapada, Matto Grosso, Brazil.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

The present specimen agrees with Bruner's description of this interesting genus and species, except that the caudal margin of the pronotal disk is arcuate instead of subangulate as described, that the caudal tibiae have six instead of seven or eight spines on the external margin and the same tibiae are purplish-glaucous instead of oil-green as described. These differences appear to us to be individual, although future work may show the Goyaz and Chapada specimens to differ from one another in other unnoticed specific features. For the present, however, it is best to consider them as representing the same species.

***Copiocera erythrogaster* (Perty).**

1834. *Xiphicera erythrogaster* Perty, Delect. Anim. Articul. Brasil., p. 122,  
pl. XXIV, fig. 2. [Mountains of the Province of Minas Geraes, Brazil.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

It seems very probable that Marschall's *euceros* was based on the male sex of this species. The difference in antennal coloration mentioned by him may have been due to Perty's specimen having had the pale tips broken off.

***Episcopotettix sulcirostris* Rehn.**

1902. *Episcopotettix sulcirostris* Rehn, Trans. Amer. Entom. Soc., XXIX,  
p. 13. [Forest of San Juan, Mexico.<sup>29</sup>]

Goyaz, State of Goyaz. Two females. [Hebard Cln.]

These specimens appear to us to represent the previously unknown female of this species. Certain features of difference from the male type are very apparent, but of these several are clearly sexual and the others are in all probability so. There exists, however, a possibility that the Goyaz females may be specifically distinct from the type of *sulcirostris*. The points of difference can be summarized as follows. The fastigium is shorter and broader than in the type, being distinctly shorter than the occiput, the dorsal surface not sulcate and distinctly lower than the level of the occiput, which latter is appreciably arcuate dorsad; the frontal costa is broader, less marked ventrad, with the sulcation distinct dorsad and subobsolete

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<sup>29</sup> We feel that the correctness of this locality is open to question, as all the material seen since the original description came from South America. The type had been dried from alcohol and labelled a number of years ago, by whom we do not know.

ventrad; the fastigio-facial truncation is more rounded; antennae much shorter and less strongly ensiform proximad. The wings have the disk colored as in the male, but the anterior field is hyaline instead of largely blackish-brown as it is, continuously with the disk, in the male. The prosternal process, rather curiously, is unsymmetrical in both females, being transverse as in the male, but having the sinistral angle distinctly projecting in a moderately acute or subbulbous projection, far more developed than the corresponding dextral angle. The cerci of the female are very slender, tapering, nearly reaching the tip of the supra-anal plate; ovipositor valves elongate, the dorsal pair greatly produced, slightly more than twice as long as the cerci and nearly twice as long as the ventral valves, strongly compressed, sublamellate, unarmed, tips blunt. The fastigium and occiput bear a pair of fine blue-black lines, which gradually diverge caudad, these represented on the pronotum by paired diffuse mottlings of the same shade, which color the punctations of the regions they cover, the transverse sulci are lined with blue-black; the impressed lines on the face and some of the punctations on the same, blue-black; dorsum of the abdomen broadly nopal red; a narrow line on the ventral section of the external face of the caudal femora and the dorsal surface blue-black.

The present specimens measure (in millimeters) as follows:

Length of body	Length of head	Length of fastigium	Length of pronotum	Length of tegmen	Greatest width of tegmen	Length of caudal femur
44.5	9.8	4.6	5.6	37.5 (incomplete)	4.2	17
47	10.3	4.8	6	41.3	4.2	18

Bruner has reported a female of this species from South America without exact locality.<sup>30</sup>

#### TETTIGONIIDAE.

##### PHANEROPTERINAE.

###### *Hyperophora brasiliensis* Brunner.

1878. *H[yperophora] brasiliensis* Brunner, Monogr. der Phaneropt., p. 126.  
[Brazil.]

Corumbá, State of Matto Grosso. March. (H. H. Smith; high-land.) One female. [U. S. N. M.]

This specimen is somewhat smaller than the original measurements of the same sex, but otherwise it is not different as far as can be determined from the very brief original description. The antennae have well-separated pale annuli on a dark ground, the pale areas

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<sup>30</sup> Biol. Cent.-Amer., Orth., II, p. 264; Ann. Carneg. Mus., VIII, p. 90.

more closely placed proximad, becoming more distant distad. The females previously recorded by us as this species from Sapucay, Paraguay,<sup>31</sup> we find instead represent the previously unknown female of *cerviformis* Rehn.<sup>32</sup> The female of *cerviformis* is a larger insect than *brasiliensis*; with a broader head as in the male, more elongate tegmina, shorter, more regularly tapering and less attenuate cerci, and much longer, more regularly arcuate ovipositor, which latter has the apex acute and the margins with fewer well-spaced teeth, which distad on the ventral margin are recurved. The surface of the ovipositor in *cerviformis* is less shagreenous than in *brasiliensis*. The selected allotype of *cerviformis* measures as follows: length of body (exclusive of ovipositor), 23.4 mm.; length of pronotum, 4.4; length of tegmen, 29.2; length of wing distad of tegmen, 7.5; length of caudal femur, 23.5; length of ovipositor, 9.

**Hyperophora peruviana** Brunner.<sup>33</sup>

1891. *Hyperophora peruviana* Brunner, Verhandl. k.-k. Zool.-botan. Gesell. Wien, XLI, p. 59. [Peru.]

Goyaz, State of Goyaz. Two females. [Hebard Cln.]

These specimens are both in the green phase and subequal in size to females from the province of Mendoza, Argentina, and appreciably smaller than Sapucay, Paraguay representatives of the same sex.

The species is now known to range from Peru east to Goyaz, Brazil, south to the Province of Mendoza, Corrientes and the territory of Misiones, Argentina.

**Uberaba brevicauda** Bruner.

1915. *Uberaba brevicauda* Bruner, Ann. Carneg. Mus., IX, p. 303. [Chapada, Matto Grosso, Brazil.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

This specimen fully agrees with the description of this very interesting genus and species. The genus is known only from the two localities here mentioned.

<sup>31</sup> PROC. ACAD. NAT. SCI. PHILA., 1907, p. 371, (1907).

<sup>32</sup> *Ibid.*, p. 371, figs. 2 and 6.

<sup>33</sup> A revision of our previous records of *H. major* Brunner, and a careful examination of the few points given by Brunner for the separation of *H. major* and *H. peruviana* have convinced us that we have examined but a single specimen of the former species. This is the female from Embarcacion, Salta, Argentina, recorded by us as a member of the Argentina series of *major* (PROC. ACAD. NAT. SCI. PHILA., 1913, p. 360, (1913)). The remainder of the series there recorded, the series from Sapucay, Paraguay (*Ibid.*, 1907, p. 373, fig. 3, (1907)) and the male from Yuto, Argentina (*Ibid.*, 1915, p. 287, (1915)), all recorded as *major*, are instead *peruviana* as we now understand it. It is possible true *peruviana* may be different, but these specimens are in accord with the very insufficient original description. *Peruviana* as we understand it is a more elongate, more uniformly narrower winged species than *major*, with more elongate limbs.

**Ligocatinus sordidus** new species. (Plate X, figs. 17 and 18.)

Allied to *L. olivaceus* (Brunner), from southeastern Brazil, Paraguay and northern Argentina, having much in common, in addition to the similar coloration of the two forms, but differing in the greater size, narrower fastigium of the vertex, narrower fastigium of the face, more distinctly longitudinal tegmina, which have a coarser reticulation than those of *olivaceus*, in the proportionately more slender and elongate limbs and in the decidedly more slender and elongate ovipositor. We do not know the male of the species, but are very certain it is not the female of *L. longicercatus* (Brunner), which was based on the male sex alone, as the size and coloration are quite different.

TYPE.—♀; Corumbá, State of Matto Grosso, Brazil. March. (H. H. Smith; highland.) [United States National Museum.]

Size medium, form more elongate and compressed than in *L. olivaceus*. Head with the occiput and interocular space full and strongly rounded, the latter moderately declivous to the fastigium, which is narrow, compressed, sulcate dorsad, with the distal extremity weakly inflated, nearly in contact with the acute-angulate but apically blunted fastigium of the face, the outline of the fastigium of the vertex, when seen from the side, being concave, the juncture with the vertex proper marked by a slight inflation: eyes large, quite prominent when seen from the dorsum, broad ovate in basal outline with a distinct ventro-cephalic angle, their depth subequal to that of the infra-ocular portion of the genae: antennae about twice as long as the body, proximal joint nearly half as wide as the eye. Pronotum not at all sellate, the dorsal line when seen from the side being straight, lateral angles of the disk not marked cephalad, weakly indicated caudad: disk with the cephalic margin truncate, caudal margin broadly and strongly arcuate; caudal width of the disk contained one and one-third times in the length of the same; lateral margins of the disk gently and regularly diverging caudad; surface of the disk with a median V-shaped impressed figure: lateral lobes of the pronotum with their greatest dorsal length slightly less than their greatest depth; cephalic margin of the lobes straight, ventro-cephalic angle roundly obtuse-angulate, ventral and caudal margins broadly and regularly arcuate to the distinct, rotundato-rectangulate humeral sinus. Tegmina elongate, the greatest width (at proximal two-fifths) contained about six times in the greatest length of the same; reticulations coarse and open compared with those of *L. olivaceus*; costal and sutural margins sub-

parallel proximad, the tegmen somewhat narrowed in distal half, apex narrowly rounded; humeral and discoidal veins non-attingent throughout, discoidal vein with one distinct distal ramus, median vein diverging slightly proximad of the middle of the tegmina, biramose. Wings surpassing the tips of the tegmina by about two-thirds of the dorsal length of the pronotum, apex of the closed wings sutural and rectangulate, the costal margin arcuate to the apex. Prosternum unarmed: meso-and meta-sternum strongly transverse, the former distinctly, the latter weakly emarginate mesad, caudo-lateral angles of both plates strongly rounded. Supra-anal plate<sup>34</sup> moderately acute trigonal, surface plane: cerci simple, short, tapering: ovipositor not strongly abbreviate and very deep as in *olivaceus*, but slightly bent at the base and faintly arcuate, the greatest depth not more than one-half the length and the form narrowed distad; dorsal margin of the ovipositor very faintly arcuate-concave, the extremity of the dorsal valves narrowly rounded; ventral margin of the ovipositor strongly arcuate throughout; all of the margins excepting the proximal third of the ventral margin with strong spiniform teeth, which are directed disto-dorsad on the dorsal margin and appreciably recurved on the ventral margin, those distad on the latter strongly recurved; surface of the ovipositor with three lines of serrato-dentations and mesad irregularly scattered, low, rounded tubercles: subgenital plate acute trigonal, compressed. Cephalic and median femora unarmed beneath; cephalic tibiae sulcate dorsad, but margins without spines excepting the caudal apical one; foramina open. Caudal femora four-fifths as long as the tegmina, strongly inflated proximad, distal half slender and the ventral margins there with not more than three spines, genicular lobes bispinose.

General color (apparently that of life) cinnamon, the tegmina with their base color warm fuscous, the venation and reticulations outlined in the general color proximad and in maroon distad; tibiae and the distal half of caudal femora washed with ox-blood red, the distal extremity of the caudal tibiae and the tarsi fuscous. Eyes brussels brown; antennae (aside from the proximal joint which is of the general color) amber-brown, multi-annulate with fuscous, which is the predominating color distad; face with the ventral margin of the antennal scrobes, the clypeal suture and a pair of short, arcuate vertical lines on the dorsal half, fuscous. Tegmina faintly greenshi

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<sup>34</sup> This is not clearly separated from the disto-dorsal abdominal segment, so the term is used in an analogous, not a strictly homologous, sense.

mesad on the costal margin. Exposed portion of the wings colored similarly to the distal portion of the tegmina. Abdomen with a broad, medio-longitudinal, dorsal bar of shining black, which includes the whole of the supra-anal plate; laterad of this bar the abdomen bears a pair of deep-chrome areas. Femoral and tibial spines tipped with black. Ovipositor teeth fuscous tipped.

Length of body (exclusive of ovipositor), 18.2 mm.; length of pronotum, 3.9; greatest (caudal) width of pronotal disk, 3.1; length of tegmen, 24.2; greatest width of tegmen, 4.1; length of caudal femur, 19.1; length of ovipositor, 5.

In addition to the type we have before us four paratypic females bearing the same data as the type, except that two were taken in April instead of March. The paratypes fully agree with the type in all essential features. In coloration they have some variation in the general tone, but the relative values remain the same. In one individual, which is not the palest of the lot, the facial markings are subobsolete.

**Ligocatinus minutus** new species (Plate X, figs. 19 and 20.)

A strikingly small member of the *olivaceus-longicercatus-sordidus* group of the genus, which in size is hardly more than two-thirds the bulk of the smallest of the previously known species. The genitalia are nearest in type to those of *longicercatus*, but the subgenital plate is hardly emarginate, while the caudal femora are unarmed beneath distad and the size, as already mentioned, is very much less. From *olivaceus* the species differs chiefly, aside from the smaller size, in the unspined ventral margins of the caudal femora, the form of the cerci and in the short styles of the subgenital plate. The species *sordidus* is known only from the female sex, but the size is quite different, the caudal femora are spined ventrad and the angle of the caudal margin of the lateral lobes of the pronotum is more decided and less rounded.

TYPE.—♂; Goyaz, State of Goyaz, Brazil. [Hebard Collection, Type no. 416.]

Size quite small: form as usual in the genus. Occiput gently rounded, regularly but strongly rounded to the fastigium, least width between the eyes slightly less than the depth of one of the eyes; fastigium compressed, weakly strumose proximad, distal portion faintly bulbous, sulcate dorsad, when seen from the lateral aspect rounded, largely in contact with the fastigium of the face; eyes moderately prominent, subreniform-ovate in basal outline, in depth subequal to the infra-ocular portion of the genae; antennae

incomplete. Pronotum with the general form much as in *sordidus* but with the disk broader, the greatest caudal width of same contained one and one-third times in the greatest length: lateral lobes with the general form more quadrate than in *sordidus*, the ventral margin being obliquely arcuato-truncate caudad, the ventro-caudal angle rotundato-rectangulate, humeral sinus as in *sordidus*. Tegmina but slightly exceeding the apices of the caudal femora, form similar, reticulations slightly coarse; discoidal vein with three distal rami, median vein diverging from the discoidal vein slightly proximad of the middle of the tegmina; stridulating field relatively simple, no distinct tympanum, stridulating vein no stronger than the other reticulations of the field. Wings surpassing the tegminal apices. Sternal plates of the types found in *L. sordidus*, but the meso-and metasternum are more decidedly transverse with the caudo-lateral angles more broadly rounded. Disto-dorsal abdominal segment arcuato-truncate dorso-mesad, with a shallow and very broad median emargination: supra-anal plate trigonal: cerci surpassing the subgenital plate, tapering, straight in the proximal four-fifths, the distal fifth slightly flattened and bent inward and dorsad, the immediate apex weakly uncinate, surface of the proximal portion of the cerci delicately tuberculate: subgenital plate narrowing distad, the distal margin truncate, styles very brief articulate nodes, ventral surface of the plate with a medio-longitudinal carina and converging paired ridges, which distad carry the styles. Caudal femora four-fifths as long as the tegmina, rather strongly inflated proximad, ventral margins unarmed, genicular lobes very weakly bispinose: caudal tibiae subequal to the femora in length.

General color chamois, becoming honey-yellow on the dorsum of the abdomen, the tegmina with their base color and also that of the wings mars-brown. Head with paired arcuate facial lines of mars-brown; eyes auburn; antennae (incomplete) hazel, sparsely annulate proximad with blackish. Tegmina with the stridulating field largely chamois, the sutural margin netted with wax-yellow, the humeral trunk, reticulations of the marginal and adjacent portion of discoidal field and costal margin primuline-yellow proximad, passing into bice-green distad. Abdomen with a broad mediadorsal blackish-fuscous line; cerci tipped with same. Caudal tibiae pale absinthe-green, becoming ochraceous-tawny.

Doubtless the original coloration of this insect was largely green or greenish, as traces of green are evident on the disk of the pronotum.

Length of body, 11.5 mm.; length of pronotum, 3.6, greatest dorsal (caudal) width of pronotal disk, 2.8, length of tegmen, 18.3; greatest (median) width of tegmen, 3.6; length of caudal femur, 14.8.

The type of this species is unique.

**Ligocatinus spinatus** (Brunner).

1878. *A[maura] spinata* Brunner, Monogr. der Phaneropt., p. 248, pl. V, figs. 74a and 74b. [Buenos Aires, Argentina.]

Corumbá, State of Matto Grosso. March (one), no date (four). One male, four females. [U. S. N. M.]

These specimens are indistinguishable from a pair from Rosario and a female from Buenos Aires, Argentina.

The species was recorded from Corumbá by Bruner.<sup>35</sup>

**Homotoicha fuscopunctata** Caudell.

1906. *Homatoicha* (sic) *fuscopunctata* Caudell, Proc. U. S. Nat. Mus., XXX, p. 236. [Sapucay, Paraguay.]

Chapada, State of Matto Grosso. May (two), June (one), July (one), September (one), no date (three). (H. H. Smith.) Three males, five females. [U. S. N. M.]

These specimens have been compared with the male from Sapucay, Paraguay, previously recorded by us,<sup>36</sup> a female from the same locality and another from the Misiones Territory, Argentine, and found to be identical. Bruner has recently recorded both sexes of the species from Chapada,<sup>37</sup> remarking that some little size variation was present in his series. The present representation shows the same feature, which, however, does not interfere with the recognition of the species, which is nearest in affinity to *H. laminata* Brunner. The form of the male cerci is very distinctive, particularly the structure of the apex.

The species is known only from the localities mentioned above.

**Ceraia cornutooides** Caudell.

1906. *Ceraia cornutooides* Caudell, Proc. U. S. Nat. Mus., XXX, p. 237. [Sapucay, Paraguay.]

Chapada, State of Matto Grosso. November. (H. H. Smith.) One female. [U. S. N. M.]

Corumbá, State of Matto Grosso. April. (H. H. Smith; highland.) One female. [U. S. N. M.]

These specimens fully agree with males from Paraguay and a female from Misiones, Argentina. It is worthy of note, from the

<sup>35</sup> Ann. Carnegie Mus., IX, p. 309, (1915).

<sup>36</sup> PROC. ACAD. NAT. SCI. PHILA., 1907, p. 376, fig. 9, (1907).

<sup>37</sup> Ann. Carnegie Mus., IX, p. 309, (1915).

above females, that the subgenital plate of that sex is progressively deeper in its emargination as material from more northern localities is examined, this being shallowest in the Misiones individual and almost fissate in the Chapada specimen. The lateral angles of the plate are progressively produced as the incision deepens.

Bruner has recorded the species from both of the above localities and Puerto Suarez, Bolivia.

**Scaphura nigra** (Thunberg).

1824. *Gr[yllus] niger* Thunberg, Mém. Acad. Imp. Sci. St. Pétersb., IX, p. 415. [Brazil.]

Goyaz, State of Goyaz. Three females. [Hebard Cln.]

Rio Verde, State of Goyaz. Three females. [Hebard Cln.]

These specimens represent about four stages in the color variations of this unstable species, of which numerous color forms have been described as distinct species. One type is extremely close to Kirby's figure of *vigorsii*, except that the proximal section of the marginal field of the tegmina is as dark as the apex of the tegmina: another is similar but paler, with the pronotum largely rufous and the distal portion of the abdomen, particularly ventrad, similar—probably near to *kirbii* Westwood; the third has the rufescence gone except from areas in the anal field, proximal section of the discoidal field and a proximo-median patch in the marginal field of the tegmina, while the apex of the tegmina is pale; the fourth form is nearly typical *nigra* or *chalybea*, with immaculate or nearly immaculate velvety black tegmina and strongly chalybeous abdomen.

**Stilpnochlora marginella** (Serville).

1839. *Phylloptera marginella* Serville, Hist. Nat. Ins., Orth., p. 405. ["Cape of Good Hope."]

Bonito, State of Pernambuco. (A. Koebele.) One male. [U. S. N. M.]

Theresopolis, State of Santa Catharina. One male. [M. C. Z.]

For comments on this species and its affinity to the other members of its species group, see the recent paper by the author on the subject.<sup>38</sup> Since the latter paper was written we have been able to examine the type of Scudder's *quadrata*, and find it to be identical with the material referred to that species by us. The type (male; Guayaquil; Ecuador; Museum of Comparative Zoology) has been badly damaged by insect pests at some time in the past, but its characters are clearly evident.

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<sup>38</sup> Entom. News, XXVIII, pp. 108–110, (1917).

**Anaulacomera<sup>39</sup> brevicauda** Brunner.

1891. *Anaulacomera brevicauda* Brunner, Verhandl. k.-k. Zool.-botan. Gesell. Wien, XLI, p. 144. [Sao Paulo, Brazil.]

Chapada, State of Matto Grosso. July and August. (H. H. Smith.) Four males. [U. S. N. M.]

Corumbá, State of Matto Grosso. July. (H. H. Smith.) One male. [U. S. N. M.]

These specimens apparently represent the previously undescribed male of the species. As far as can be determined from the ambisexual characters given in the original description, our individuals are conspecific with the female described by Brunner. The stridulating field of the male tegmina is elongate and relatively narrow, bearing two very conspicuous, ivory-white, subcircular areas, surrounded and separated by a border of ox-blood red. The margin of the disto-dorsal abdominal segment is faintly arcuato-emarginate distad, while the supra-anal plate is of uncertain form, being buried by the flexed cerci; the latter are simple, tapering, deplanate distad, straight in the proximal two-thirds, then moderately arcuate inwards, the apex blunt; subgenital plate rather short, narrowing distad, with a distinct median carina, the distal margin truncate with the lateral angle produced into distinct, acute, substyliform processes. A representative specimen measures as follows: length of body, 14 mm.; length of pronotum, 4.3; length of tegmen, 25.5; greatest width of tegmen, 5.6; length of caudal femur, 17.5

The localities given above are apparently the only ones from which the species has been reported, Bruner having already recorded it from Chapada.<sup>40</sup>

**Anaulacomera bellator** new species. (Plate X, figs. 21 and 22.)

Closely related to *A. intermedia* Brunner (plate X, fig. 23), with a male of which we have compared the new species, but differing in the more roundly deflected lateral lobes of the pronotum, the more narrowly rounded tegminal apices, somewhat longer limbs and more strongly divergent sections of the male cerci, these divided more proximad and the ventral section of which also carries on its dorsal surface a short supplementary spine.

<sup>39</sup> We find that the species described by us as *Hyperoprona signata* (Proc. ACAD. NAT. SCI. PHILA., 1907, p. 382, figs. 14, 15 and 16, (1907)), from Sapucay, Paraguay, is not a member of that genus, but instead an aberrant *Anaulacomera*, more nearly related to *A. brevicauda*. From the latter species *signata* differs in the proportionately broader tegmina, which are regularly elongate ovate, in the less slender limbs, the more sharply hooked cercal apices and the distinctly broader tympanal field of the male tegmen.

<sup>40</sup> Ann. Carneg. Mus., IX, p. 319, (1915).

TYPE.—♂; Rio de Janeiro, Brazil. November. (H. H. Smith.)  
[United States National Museum.]

Size medium: form moderately compressed. Head with the occiput moderately arcuate in transverse section, not at all declivous cephalad; fastigium moderately compressed, faintly elevated and slightly enlarged distad, sulcate dorsad, the lateral margins of the dorsal surface faintly elevated proximad, cephalic face of the fastigium cuneate, weakly excavate, well separated from the acuminate frontal fastigium: palpi very elongate, extremely slender, the distal joint moderately arcuate distad; eyes prominent, semiglobose, in basal outline circular: antennae incomplete in the type, proximal joint large. Pronotum with the greatest caudal width of the disk contained one and two-thirds times in the length of the same, the surface of the disk moderately arcuate in transverse section cephalad deplanate caudad, lateral angles weakly indicated caudad; cephalic margin of disk faintly arcuato-emarginate, caudal margin moderately arcuate; an impressed figure, in the form of a broad Ψ, placed slightly caudad of the middle of the disk: lateral lobes of the pronotum slightly longer than deep; cephalic margin of lobes arcuato-sinuate, ventro-cephalic angle obtusely rounded, ventral margin, ventro-caudal angle and caudal margins broadly arcuate, regularly passing from the ventro-cephalic angle to the humeral sinus, the latter distinct but not deeply indicated, obtuse-angulate. Tegmina elongate lanceolate, surpassing the apex of the abdomen by more than twice the length of the head and pronotum combined; greatest width of tegmen contained four and one-half times in the length of the same, greatest width of the marginal field at the proximal third of the tegmen and there forming two-fifths of the entire tegminal width; costal margin in general very weakly arcuate, very briefly sharp arcuate proximad, distad regularly and decidedly arcuate to the relatively narrow, but well rounded apex; sutural margin nearly straight, moderately distad to the apex; marginal field irregularly areolate, with about six or seven oblique, irregular rami of the humeral vein, which are poorly dominant in the general areolation of the field; median vein diverging from the discoidal very faintly proximad of the middle of the tegmen, bifurcate, with the rami reaching the sutural margin; ulnar vein markedly undulate, without appreciable rami; discoidal field very closely and finely areolate, these slightly larger distad, in the proximal half of the area between the discoidal and ulnar veins are placed a series of six to seven low nodes in the reticulate areolation: stridulating field relatively nar-

row, moderately elongate, the margin very broadly obtuse-angulate at the apex of the stridulating vein, the latter thick, depressed, hardly arcuate. Wings surpassing the closed tegmina by about two-thirds the length of the pronotal disk. Prosternum with a broadly triangular figure: mesosternum with rounded obtuse-angulate lobes: metasternum with convergent, shallow, arcuate lobes. Abdomen but little compressed, the dorsal surface rounded tectate: disto-dorsal abdominal segment relatively short, subdepressed dorsad, faintly declivous distad; distal margin sinuato-truncate dorso-mesad, lateral margins markedly bisinuate: cerci relatively heavy, forked from the base, the rami strongly diverging, the dorsal one erect, moderately inbowed or faintly inbent, tapering, the apices acute spiniform, on the external and internal surfaces bearing three longitudinal grooves, separated by distinct, sharp carinulae; ventral ramus directed ventrad and slightly cephalad, when seen from the caudal aspect directed slightly inwards toward the median line of the body, the ramus relatively thick, weakly channelled on the internal face, the extremity somewhat thickened and rounded bulbous, with a blunt tooth on the internal face slightly proximad of the extremity; at about the middle of the ventral ramus, on the caudal face, there is present a slender, spiniform process, which is nearly straight and is directed caudo-mesad: subgenital plate relatively large, scoop-shaped, with a distinct, complete, median carina and short lateral carinae on the distal section of the plate, the latter carinae ending in very low, blunt tubercles, which form the lateral angles of the distal margin of the plate; distal margin of the plate not longer than two-thirds the length of the lateral margin of the plate, faintly angulate emarginate; lateral margins of the plate sinuato-arcuate. Cephalic femora more than five-sixths the length of the pronotal disk; cephalic tibiae one-third longer than the cephalic femora, very slender distad of the enlarged proximal section, auditory foramina relatively large, elliptical on both faces. Median limbs missing. Caudal femora but slightly shorter than the body, moderately slender, ventral margins spined distad, the external with seven, the internal with five spines both genicular lobes with a single spine; caudal tibiae surpassing the length of the femora by about half the length of the pronotal disk, all margins continuously spined, the dorsal ones more heavily so than the ventral ones.

General color ranging from sayal-brown on the head, pronotum and sides of the abdomen, to ochraceous-tawny on the dorsum of the abdomen, and cinnamon-buff, the latter broadly washed with

light cress-green, on the tegmina and exposed portions of the wings. The original color was probably more green than is now the case with the type specimen, but to what extent we cannot say, and the coloration described is that found in the present condition of the individual. Eyes cinnamon-brown, blotched with fuscous. Antennae, except for the proximal portion which is of the general color, clear kildare-green. Femora of the general color, tibiae weakly light cress-green.

Length of body, 21.8 mm.; length of pronotal disk, 5.3; greatest (caudal) width of pronotal disk, 3; length of tegmen, 29.3; greatest width of tegmen, 6.1; length of caudal femur, 19.8.

The type of this most interesting species is unique.

**Anaulacomera libidinosa** new species. (Plate X, figs. 24; Pl. XI, fig. 25.)

Apparently close to *A. chelata* Brunner, having with the older species a unique position in the genus by possessing an articulate appendage attached to the cercus of the male, but differing from *chelata* in the lateral lobes of the pronotum being longer than high, and in the articulate arm of the cercus being of a more highly specialized character, having the apex of the same blunt and depressed and the ventral surface with an arcuate compresso-lamellate expansion.

TYPE.—♂; Bonito, State of Pernambuco, Brazil. January 16, 1883. (A. Koebele.) [United States National Museum.]

Size medium: form distinctly compressed, deep: surface of limbs shining, of most of body dull. Head slightly broader across genae than caudad of the eyes; face faintly bullate, slightly compressed and the infra-antennal region impressed: palpi elongate, slender: eyes moderately prominent, faintly flattened subglobose when seen from the dorsum, slightly projecting cephalad, basal outline subcircular: antennae slender, proximal joint relatively large. Pronotum with the disk narrow, its greatest caudal width contained about one and two-thirds times in the greatest length of the same, surface of the disk faintly arcuate transversely cephalad, deplanate caudad, lateral angles moderately indicated caudad, more rounded cephalad, surface of the disk with a fine medio-longitudinal sulcation, across which, slightly caudad of the middle of the disk, is placed an obtusely-angulate sulcation, which does not reach the lateral angles of the disk; surface of the cephalic portion of the disk slightly rugulose: cephalic margin of the disk truncate, caudal margin of the disk moderately arcuate: lateral lobes of the pronotum slightly longer than deep, nearly vertical; cephalic margin arcuato-emarginate,

ventro-cephalic angle rounded obtuse, ventral margin oblique subtruncate, ventro-caudal angle and caudal margin broadly and regularly arcuate, humeral sinus moderately decided, rounded rectangulate.

Tegmina about half again as long as the body, lanceolate, the greatest width contained slightly more than three and two-thirds times in the length of the same, the marginal field at the proximal third of the tegmen forming two-fifths of the entire tegminal width: costal margin well arcuate proximad and distad, flattened mesad, apex moderately narrowed but well rounded, sutural margin gently arcuate: marginal field with numerous but coarse areolations, which are deeply etched, among which there stands out above seven poorly defined oblique rami of the humeral vein; median vein diverging slightly distad of the middle of the tegmen, this bifurcate with the rami reaching the sutural margin shortly proximad of the apex, these and the ulnar vein much fractured and in consequence somewhat zig-zag in their direction, the areolations of the discoidal field in general, but particularly proximad, finer than those of the marginal field: stridulating field relatively small, the margin rounded obtuse-angulate at the apex of the stridulating vein, the latter slightly oblique, gently arcuate, distinctly depressed, thickened. Wings with the normally exposed portion projecting distad of the tegmina a distance equal to the length of the pronotal disk, the form of the apex narrowly rounded acute.

Prosternum with a broadly V-shaped carinate elevation: mesosternal lobes very small, rounded rectangulate, convergent: metasternal lobes similar to the mesosternal lobes but slightly larger. Disto-dorsal abdominal segment moderately cucullate, the margin arcuate-emarginate laterad around the cercal bases, the distal margin proper (mesad) shallowly arcuate-emarginate: cerci with the main (ventral) shaft about two-thirds as long as the disk of the pronotum, weakly compressed, gently falciform, tapering in proximal half, subequal in distal half where the width is little more than half that at the base, the apex with an unguiculate spine; dorsal articulate section of the cercus about half again as long as the ventral portion, straight, at the middle on the ventral surface there is developed a low but distinct lamellation, which is regularly arcuate proximad, oblique subtruncate distad, the angle narrowly rounded, the general form of this lamellation strongly suggesting the femoral lobes of certain mantids of the subfamilies Vatinae and Empusinae, the distal section of this arm of the cercus

is depressed and when seen from the dorsum spatulate: subgenital plate broad, slightly scoop-shaped, regularly narrowing distad, distal margin of the plate so damaged that its true form cannot be determined, the styles also being missing, but the latter were in all probability well developed, as tubular sockets in which they were placed are indicated in the remaining section of the distal portion of the plate.

Cephalic femora subequal to the disk of the pronotum in length; cephalic tibiae surpassing the femora in length by about one-fourth of the femoral length, very slender except in the proximal fourth, auditory tympani elliptical. Median femora half again as long as the pronotal disk; median tibiae surpassing the femoral length by about that of the distal tarsal joint. Caudal femora nearly three-fifths as long as the tegmina, moderately inflated proximad, slender distad, moderately compressed proximad, ventral margins armed with three to four (external) and two (internal) spines; caudal tibiae one and one-fifth times as long as the femora, compressed, deeper proximad than distad, armed on the dorsal margins with distinct spines, those of the internal margin more numerous than those of the external and differing from those on the latter margin in being erect and not diverging, between the spines is present a continuous, distinct and deep sulcus, ventral margins with relatively few spines, these mainly distad.

Original coloration of the specimen destroyed by immersion at some time in a liquid preservative. Present color wood-brown, the tegmina verona brown.

Length of body, 17.2 mm.; length of pronotum, 4.9; greatest (caudal) width of the pronotal disk, 2.9; length of tegmen, 27; greatest width of tegmen, 6.8; length of caudal femur, 21.2; length of caudal tibia, 18.5.

The type of this species is unique.

**Anaulacomera sulcata** Brunner.

1878. *A[naulacomera] sulcata* Brunner, Monogr. der Phaneropt., pp. 279, 289. [Brazil; Peru.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

This specimen fully agrees with the original description and is inseparable from an individual of the same sex from Rio de Janeiro, in the collection of the Academy of Natural Sciences of Philadelphia, which was determined as *sulcata* by Saussure, from whom it was received. The species has been questionably recorded from Rio de Janeiro by Bruner.

**Grammadera rostrata** Rehn.

1907. *Grammadera rostrata* Rehn, Proc. Acad. Nat. Sci. Phila., 1907, p. 378, figs. 10 and 11. [Sapucay, Paraguay.]

Corumbá, State of Matto Grosso. March. (H. H. Smith; low-land.) One female. [U. S. N. M.]

This specimen has been compared with the type and found to be inseparable. The size is very faintly smaller, and the ovipositor is faintly more arcuate proximad on the ventral margin, but otherwise the two are identical.

Corumbá and Sapucay are the only localities known for the species.

**Grammadera chapadensis** Bruner.

1915. *Grammadera chapadensis* Bruner, Ann. Carneg. Mus., IX, p. 321. [Chapada, Matto Grosso, Brazil.]

Chapada, State of Matto Grosso. November. (H. H. Smith.) Two males, two females. [U. S. N. M.]

Goyaz, State of Goyaz. Four females. [Hebard Cln.]

These specimens fully agree with the description of *chapadensis*, which is certainly close to *albida* Brunner. Just how it differs from the older species is not at all clear, as the form of the supra-anal plate of the male, which is said in the original description of *chapadensis* to be the chief characteristic of the species, shows no differences which would not be covered by Brunner's brief description of this area in *albida*.

The material from Sapucay, Paraguay and Misiones, Argentina which we had previously referred to *albida*,<sup>41</sup> we now know does not belong to that species, but instead represents *G. steinbachi* Bruner,<sup>42</sup> a species which at the time of our references was undescribed. In consequence we do not know *albida* Brunner, to which, however, *chapadensis* is very close.

The localities given above are the only ones known for the species.

**Phylloptera<sup>43</sup> quinque-maculata** Bruner.

1915. *Phylloptera quinque-maculata* Bruner, Ann. Carneg. Mus., IX, p. 325. [Chapada, Matto Grosso, Brazil.]

Chapada, State of Matto Grosso. July and October. (H. H. Smith; campo [October].) Two males, one female. [U. S. N. M.]

These specimens are perfectly typical of Bruner's species. One male is more brownish than the other individuals, while in all the dorso-caudal section of the pronotal disk is strongly colored.

<sup>41</sup> PROC. ACAD. NAT. SCI. PHILA., 1907, p. 377, [Sapucay, Paraguay]; *Ibid.*, 1913, p. 371, [Misiones, Argentina]; *Ibid.*, 1915, p. 287, [Misiones, Argentina].

<sup>42</sup> Ann. Carneg. Mus., IX, p. 322. [Puerto Suarez, Bolivia.]

<sup>43</sup> At this writing we have before us the unique female type of *Phylloptera tripunctata* Scudder (Proc. Boston Soc. Nat. Hist.; XVII, p. 261, (1875)), described

**Phylloptera phyllopterooides** (Brunner).

1878. *P[arableta] phyllopterooides* Brunner, Monogr. der Phaneropt., p. 254.  
[Brazil.]

Goyaz, State of Goyaz. One male, two females. [Hebard Cln.]  
This is apparently the first record of the species with exact data.

**Phylloptera tenella** new species. (Plate XI, figs. 26, 27 and 28.)

A close relative of *P. alliedea* Caudell, from Paraguay,<sup>44</sup> and *P. cognata* Rehn, described below, but particularly close in its relationship to the former. From *alliedea* the present species differs in its considerably smaller size, more robust proximal portion of the caudal femora and the more bent, shorter and blunter ovipositor. The form of the latter strongly approaches that of the ovipositor of *P. cognata*, but in proportions it would hold an intermediate position, as the apex is more acute and the disto-dorsal section of the margin is by no means as coarsely spined as in *cognata*.

TYPE.—♀; Corumbá, State of Matto Grosso, Brazil. March. (H. H. Smith; highland.) [United States National Museum.]

Size medium: form compressed. Head with the fastigium narrow, acuminate, sulcate, moderately declivent, hardly in contact with the fastigium of the face, the latter moderately acuminate: palpi elongate, slender, the distal joint arcuate: eyes not prominent, faintly compressed, slightly projecting cephalad, in basal outline slightly ovate. Pronotum with the disk deplanate, relatively broad, the greatest caudal width contained one and one-fifth times in the greatest length of the same; cephalic margin of the disk concave with a faint angulate tendency, caudal margin of the disk strongly arcuate; surface of the disk with a distinct but narrow medio-longitudinal sulcus, a median figure forming with the sulcus the letter Ψ; lateral angles distinct, rectangulate, subcarinate: lateral lobes slightly deeper than long; cephalic margin of the lobes weakly concave, ventro-cephalic angle moderately rounded, ventral margin

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from the "Eastern slopes of the Peruvian Andes." Brunner, in 1878 (Monogr. der Phaneropt., p. 314), suggested the possibility of the species being the same as his there described *P. serva*, while, in 1896, Scudder (Proc. Boston Soc. Nat. Hist., XXVII, p. 213) stated it appeared to be a *Homotoicha*. Kirby in his catalogue (Synon. Catal. Orth., II, p. 450, (1906)), placed *tripunctata* in *Parascudderia*. As a matter of fact the species is a *Phylloptera*, rather aberrant in certain features it is true, but it is the same as either *P. nigro-auriculata* or *breviramulosa* Brunner (Verhand. k.-k. Zool.-botan. Gesell. Wien, XLI, p. 162, (1891)), from the Upper Amazons. It agrees in structure and coloration very fully with *breviramulosa*, but in addition has the tegminal margins and cephalic tibiae colored as in *nigro-annulata*. The safer course appears to us to be the synonymizing of *breviramulosa* under *tripunctata*. The type is in bad condition, having been dried from alcohol.

<sup>44</sup> Proc. U. S. Nat. Mus., XXX, p. 238, (1906).

broadly arcuate, ventro-caudal angle not indicated, the ventral margin passing regularly into the arcuate caudal margin, humeral sinus well indicated, rounded obtuse-angulate.

Tegmina surpassing the apex of the abdomen by the greater portion of the length of the caudal femora, its length slightly more than six times that of the disk of the pronotum, its greatest width contained two and four-fifths times in the greatest length of the same: costal margin regularly and rather strongly arcuate, sutural margin similarly arcuate, apex broadly rounded acute: marginal field at its widest point forming about two-fifths of the entire tegminal width at that point: median vein diverging at two-fifths of the tegminal length from the base, bifurcate, the arms reaching the sutural margin very shortly before the apex; ulnar vein with two distinct rami; transverse nervures of the discoidal field relatively few, rather regularly placed, those distad slightly oblique, the "dead" spots placed one on each of the ulnar rami close to the main vein, the third covers the short transverse nervures connecting the ulnar vein and the proximal fork of the median vein: anal field narrow, elongate. Wings but slightly projecting distad of the closed tegmina, the apex moderately acute when closed, when the wing is expanded the apex is rotundate rectangulate.

Mesosternal lobes relatively small, acute: metasternal lobes rectangulate, arcuate laterad. Abdomen distinctly compressed, moderately carinate dorsad, aside from the two dorsal segments: disto-dorsal abdominal segment short, weakly sulcate medio-longitudinally, the margin rather briefly sinuato-emarginate on each side of the sulcus: supra-anal plate trigonal, briefly and shallowly sulcate proximad: cerci tapering, falciform, relatively thick proximad, the extremity slender: ovipositor one and two-fifths times as long as the disk of the pronotum, strongly compressed, deep, regularly falcate, the dorsal margin serrulate in the greater portion of its length, the denticulations regularly increasing in size distad, ventral margin with recurved denticulations for a short distance distad, apex of the two valves together moderately acute; surface of ovipositor with depressed shagreenous teeth: subgenital plate trigonal, deeply sulcate medio-longitudinally, this bounded laterad by converging, elevated, rounded ridges.

Cephalic femora very slightly longer than the pronotal disk, ventro-internal margin armed distad with two to three spines; cephalic tibiae with the auditory foramina elongate elliptical. Caudal femora about three-fifths as long as the tegmen, moderately

inflated proximad, appreciably compressed, ventro-external margin with six spines, ventro-internal margin with five to eight spines, genicular lobes bluntly bispinose: caudal tibiae faintly longer than the femora, subcompressed, particularly proximad, the dorsal margins sublamellate carinate, multispinose, the ventral margins less thickly spined, dorsal surface moderately deplanate impressed.

**ALLOTYPE.**—♂; Same data as type. [United States National Museum.]

Differing from the above description of the type in the following features. Stridulating field of the tegmina with its margin oblique arcuate to the apex of the stridulating vein, there rounded and distad very faintly arcuate the remainder of its length; stridulating vein thick, strongly depressed, in fact flattened, in the greater portion of its length transverse, narrowing distad, the distal margin of the vein with a distinct cingulate ridge. Disto-dorsal abdominal segment with the sinuate-emarginate character of the margin much less decided than in the female, yet appreciable: cerci strongly falcate dorso-mesad, slightly thickened proximad, elsewhere uniform in thickness, the extremity not acuminate, armed with two low, very blunt teeth: subgenital plate with the lateral margins regularly narrowing distad, the distal extremity very narrowly arcuate-emarginate, the bases of the styles developed as short projections on each side of the distal emargination, these projections represented and continued over the plate for some distance by slightly diverging rounded ridges; styles short, their length subequal to the distance between their bases, simple. Caudal femora with the ventro-external margin bearing four to five spines; ventro-internal margin with four to five spines.

General color honey yellow to clay color (doubtless discolored), the distal three-fifths or all of the tegmina courge-green, the venation in the green sections lined with light hellebore-green, the "dead" area mummy-brown. Normally exposed portion of the wings colored similarly to the tegmina. Eyes buckthorn-brown. Limbs proximad of the general color, passing on the distal section of the femora and the tibiae to course- and biscay-greens, these more decided on the caudal limbs.

*Measurements (in millimeters.)*

Length of body	Length of pro- notum	Greatest (caudal) width of pronotal disk	Length of tegmen	Greatest width of tegmen	Length of caudal femur	Length of ovi- positor
♂, allotype....20	4	3.3	26	9.2	16.1	—
♀, type .....21.5	4.1	3.6	28.3	10.2	18.3	6

In addition to the type and allotype we have before us two male and one female paratypes which bear the same data as the type, except that all three of them were taken in the month of April. These specimens show no noteworthy variation from the above descriptions, except in furnishing data on the variability of femoral spine formulae. The cephalic femora have on the internal face distad from two to four spines, while the caudal femora are armed on the external margin with from four to six (generally five) spines, the internal with from four to eight spines.

**Phylloptera cognata** new species. (Plate XI, figs. 29, 30 and 31.)

Closely related to *P. alliedea* Caudell, from Sapucay, Paraguay,<sup>45</sup> agreeing in the sulcation of the cephalic femora, the form of the sternal lobes and the general form, but differing in the more elongate basal outline of the eyes, the axis of which is more oblique dorso-caudad, the more compressed fastigium of the face, the proportionately narrower tegmina and the shorter, much broader (proportionately) and distinctly bent ovipositor, the apex of which is dorsad and sharply narrowed and on the distal portion of the dorsal margin is strongly dentate. From the above described *tenella*, *cognata* can be separated readily by its larger size, the shape of the eyes and the stouter and more abbreviate ovipositor. The male of the species is unknown.

TYPE.—♀ ; Chapada, State of Matto Grosso, Brazil. August. (H. H. Smith.) [United States National Museum.]

Size medium: form compressed: surface dull, mat, the tegmina and exposed portion of the wings coriaceous. Head in general form similar to that of *tenella*: fastigium faintly longer and more regularly narrowing than in *tenella*; fastigium of the face as in *tenella*, median ocellus large: face bullate to the same degree and laterally compressed in similar fashion to that of *tenella*: palpi equally slender but slightly shorter than in *tenella*: eyes in basal outline distinctly ovate, the axis oblique: antennae reaching at least as far as the tips of the tegmina.

Pronotum as in *tenella* except that the ventro-cephalic angle of the margin of the lateral lobes is more obtuse and less rounded. Tegmina very similar to those of *tenella*, but the apex is slightly more sharply rounded. Sternal lobes of the type found in *tenella*, but they are individually slightly more longitudinal. Apex of the abdomen as in *tenella*, with the following differences: oviposi-

<sup>45</sup> Proc. U. S. Nat. Mus., XXX, p. 238, (1906).

tor subequal in length to the disk of the pronotum, strongly compressed, moderately deep, bent dorsad very close to the base, apex of the two valves together broader and blunter than in *tenella*, the dorsal margin serrulate distad, the ventral margin recurved denticulate distad.

Cephalic femora armed on the ventro-internal margin with four spines distad. Caudal femora about four-sevenths as long as the tegmen, general form as in *tenella*, ventro-external margin with six to nine spines, ventro-internal margin with four to six spines: caudal tibiae as in *tenella*.

General color of the body and limbs antimony yellow to ochraceous-buff, darkening on the ventral surface of the abdomen to tawny, tegmina, exposed portion of the wings and to a certain extent the dorsum of the pronotum, courge-green, the veins frequently, and to a variable degree, lined with light hellebore-green, the "dead" spots mummy brown and variable in size, occasionally but two being present. Eyes buckthorn-brown. Tibiae courge-green, the extremities of the caudal femora weakly of the same color. In life the body coloration was in all probability green or greenish, that of the tibiae probably being a remnant of the natural color.

Length of body, 19 mm.; length of pronotum, 4.5; greatest (caudal) width of pronotal disk, 3.9; length of tegmen, 32; greatest width of tegmen, 10.9; length of caudal femur, 18.5; length of ovipositor, 5.

In addition to the type we have before us two paratypic females, which bear the same data as the type, except that one was taken in the month of July instead of August. These specimens show no noteworthy differences from the type. One of the specimens has lost the cephalic femora and the other has but a single one; in this latter the femur has but a single spine on the ventro-cephalic margin. The ventro-external margin of the caudal femora has the spines seven or eight in number, of the ventro-internal margin six to eight in number. These figures make the known variation in the formulae of these margins for the species, six to nine and four to eight respectively.

**Phylloptera ovalifolia** Burmeister.

1838. *Ph[y]lloptera ovalifolia* Burmeister, Handb. der Entom., II, Abth II, pt. I, p. 693. [South America.]

Rio de Janeiro, State of Rio de Janeiro. November. One male. [U. S. N. M.]

This species previously has been recorded from Rio de Janeiro, Theresopolis and Santa Catharina, Brazil.

**Phylloptera spinulosa** Brunner.

1878. *Ph[ylloptera] spinulosa* Brunner, Monogr. der Phaneropt., p. 314.  
[Ypanema, State of São Paulo, Brazil.]

Rio Verde, State of Goyaz. One female. [Hebard Cln.]

Goyaz, State of Goyaz. One male. [Hebard Cln.]

Corumbá, State of Matto Grosso. March and April. (H. H. Smith; highland.) Three females. [U. S. N. M.]

These specimens show a great amount of size variation, which appears to have some geographic correlation.

The Corumbá specimens are of a uniformly medium size, while the Rio Verde female is quite large, and the Goyaz male the smallest individual of the species we have seen, much smaller than a Sapucay male, the only other individual of that sex at hand. The tegmina of one Corumbá individual are unmarked, of another with a single small ocellar spot on the ulnar vein at the base of its first ramus, and the third with a relatively large greenish-white ocellar spot in the same position. The Rio Verde female has no tegminal spots, and the Goyaz male is similar in this respect to the second Corumbá individual mentioned above. There is considerable variation in the relative width of the tegmina, which is apparently individual in character.

The species is now known to range from the State of Goyaz west to at least Corumbá, south to Sapucay, Paraguay and the Misiones, Argentina.

**Pycnopalpa bicordata** (Serville).

1825. *L[ocusta] bicordata* Serville, Encycl. Méthod., Ins., X, p. 343. [Brazil.]

Rio de Janeiro, State of Rio de Janeiro. November and December. (H. H. Smith.) Two males. [U. S. N. M.]

These specimens show some difference in size, but are clearly identical. Bruner has recorded the species from this locality.

**Pycnopalpa rubiginosa** (Bruner).

1915. *Topana rubiginosa* Bruner, Ann. Carneg. Mus., IX, p. 330. [Chapada, Matto Grosso, Brazil.]

Chapada, State of Matto Grosso. July. (H. H. Smith.) One male. [U. S. N. M.]

This specimen fully agrees with the original description except for its faintly smaller size. We feel that Bruner was not correct in placing this species in *Topana*, as a careful comparison of it with the genotypes of *Topana* and *Pycnopalpa* shows more features of agreement with the latter than with the former. The cingulate disk of the pronotum, the form of the palpi, the number of spines

on the ventro-cephalic margin of the cephalic femora, the form of the stridulating field of the male tegmina and the color distribution at the base of the tegmina are as in *Pycnopalpa*, while the tegminal venation and the non-erose character of the tegmina are as in *Topana*. As the majority of the striking features accord with *Pycnopalpa* this association is clearly the more justifiable course to pursue, although *ruginosa* is a definite proof of the common origin of the two genera.

***Topana cincticornis* (Stål).**

1873. *Plagioptera* [*cincticornis*] Stål, Ofv. K. Vetensk.-Akad. Förhandl., XXX, p. 43. [Brazil.]

Chapada, State of Matto Grosso. April, July and August. (H. H. Smith; one labelled "highland".) One male, four females. [U. S. N. M.]

Brunner<sup>46</sup> has recorded the species from this locality. These specimens agree with Stål's description, but are somewhat smaller than the measurements given for the species by Brunner. The species has been definitely recorded from Rio de Janeiro, Nova Friburgo, Matto Grosso and Chapada, Brazil, and Luque, Paraguay, as well as general "Brazil" and "Paraguay" records.

***Diplophyllus ensifolius* Saussure.**

1859. *Phylloptera* (*Diplophyllus*) *ensifolia* Saussure, Revue et Magasin de Zoologie, 2e sér., XI, p. 202. [Bahia, Brazil.]

Corumbá, State of Matto Grosso. March. (H. H. Smith; highland.) One female. [U. S. N. M.]

This specimen agrees with the two previous descriptions (Saussure and Brunner), which were based on the male sex, but has the tegmina shorter (33 mm. instead of 39) and narrower (10 instead of 11) than Brunner's measurements of the same. When compared with a female of *D. punctatus* (Stål), from Montserrat, West Indies, *ensifolius* is seen to be a more slender insect, with less globose eyes, more regularly lanceolate and less angulate tegmina, and much more elongate, narrower and regularly arcuate ovipositor, which has the distal third of its dorsal margin crenulato-serrate and the same portion of the ventral margin recurved serrato-dentate. The length of the ovipositor is 9.6 mm.; the median depth of the same, 1.9.

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<sup>46</sup> Ann. Carneg. Mus., IX, p. 330, (1915).

**Microcentrum lanceolatum** (Burmeister).

1838. *Ph[ylloptera] lanceolata* Burmeister, Handb. der Entom., II, abth. II, pt. 1, p. 692. [Brazil.]

Rio de Janeiro, State of Rio de Janeiro. November. (H. H. Smith.) Two males. [U. S. N. M.]

The present widely distributed species has been recorded from this locality by Brunner and Bruner.

**Lobophyllus reversus** new species. (Plate XI, figs. 32 and 33.)

A striking species, differing chiefly from *L. legumen* Saussure, from "Brazil," the genotype and only previously known species, in the more subequal dorsum of the pronotum, the much more ample tegmina, the distal portion of which is much wider, in the transverse veins of the marginal field of the tegmina being directed proximad, in the ramus of the median vein being proximad extremely close to the median vein, in the more regular disposition and correlation of the rami of the median and ulnar veins and in the caudal tibiae slightly surpassing instead of being shorter than the femora. The ovipositor of the new species is quite different from that of *legumen*, being proportionately shorter and broader with a rotundato-truncate apex and the margin of the same section denticulate.

TYPE.—♀; Goyaz, State of Goyaz, Brazil. [Hebard Collection, Type no. 473.]

Size large: form moderately compressed: surface unpolished, tegmina and exposed portions of wings coriaceous, with a faint gloss. Head with its greatest width slightly greater than the depth from the occipital margin to the clypeal suture: occiput bullato-arcuate transversely, regularly arcuato-declivous from the caudal portion of the occiput to the fastigial suture: fastigium of the vertex very broad, faintly broader than the greatest dimension of the eye, not at all elevated above the general level of the head, broadly in contact with the equally wide and similarly constructed fastigium of the face, the inter-fastigial suture straight: surface of the fastigia and vicinity cribroso-punctulate, the occiput and genae with scattered indications of the same: eyes little prominent, relatively small, in basal outline subcircular, with a slight flattening cephalad: antennae not reaching to the apex of the abdomen, aside from the two proximal joints very slender.

Pronotum with the length of the disk about one and one-fourth times the greatest width of the head, the greatest (caudal) width of the disk contained one and one-fourth times in the length of the same; disk nearly subequal in width; the lateral margins faintly diverging, regularly, caudad, the cephalic width equal to about nine-tenths the caudal width; cephalic margin of the disk arcuate-

emarginate with a faint median tooth, caudal margin of the disk strongly arcuate with a weak, shallow median emargination; lateral margins of the disk rectangulate in caudal two-thirds, obtuse in cephalic third, rounded in both sections, cut at one-third their length from the cephalic margin by a very brief sulcus, which does not extend over the disk of the pronotum, the latter with a broad V-shaped figure faintly cephalad of the middle, when seen from the side the portion of the disk caudad of this figure is plane, while that cephalad of the same is regularly ascending cephalad: lateral lobes of the pronotum slightly deeper than long, the dorsal length contained one and one-fifth times in the depth; cephalic margin arcuato-emarginate, ventro-cephalic angle rounded obtuse, the ventral margin relatively short, oblique, rotundato-truncate, ventro-caudal angle broadly rounded-rectangulate, caudal margin flattened arcuate, slightly oblique ventro-cephalad in direction, humeral sinus relatively small, but acute and sharply indicated: surface of disk and lobes cibroso-punctulate, the indentations finer cephalad on the disk and the dorsal section of the lateral lobes than elsewhere.

Tegmina elongate and ample, their length slightly greater than one and two-thirds times the body length, the greatest width contained two and one-third times in the greatest length of the same, the general form of the tegmen acuminate ovate-lanceolate, the greatest width at five-eighths of the length from the base: costal margin regularly and strongly arcuate, apex slightly acute, the immediate apex rather narrowly rounded, sutural margin faintly arcuate distad to the distal third, thence broadly arcuate and in the remainder of the margin (subapical portion) oblique subtruncate to the apex: marginal field very broad in the proximal two-thirds of the tegmina, distad of this point the curving of the humeral trunk restricts the marginal field to a mere edging, the greatest width of the field (at the proximal third of the tegmen) slightly more than one-third of the greatest tegminal width and two-fifths of the entire tegminal width at the proximal third; anal field relatively narrow and elongate: mediastine vein short, subobsolete; rami of the humeral vein, which cross the marginal field, all regularly trend in the direction of the base of the tegmen as they diverge toward the costal margin, these rami more numerous and crowded distad; humeral trunk sigmoid, the arcuate at the distal third very decided when compared with that at the proximal third; median vein diverging from the discoidal vein very shortly before the middle of the tegmen,

for a short distance paralleling the discoidal vein, bifurcate then diverging from the main humeral trunk at an angle of sixty degrees and in a fractured fashion reaching the oblique portion of the sutural margin; ulnar vein arcuate toward the humeral trunk, which it closely approaches, distad connected with the proximal ramus of the median vein by a short cross-vein, the ulnar vein with two oblique arcuate rami, which follow the general trend of the extremity of the main ulnar vein, a number of oblique cross-veins between the humeral trunk and the ulnar vein are also present, these having the same trend toward the base as they approach the humeral trunk, a peculiarity possessed by all the more prominent rami and cross-veins. Wings with the exposed portion very acute, projecting distad of the tegmina a distance subequal to the length of the pronotal disk.

Mesosternal lobes elongate, acute-angulate caudad, the angle very narrowly rounded, the external margin of the lobes gently arcuate, the lobes held in a nearly vertical position: metasternal lobes individually longitudinal, shorter proportionately than the mesosternal lobes, the caudal angle moderately acute, the angle narrowly rounded, the caudal and lateral margins moderately arcuate. Disto-dorsal abdominal segment moderately arcuate about the base of each cercus, the distal margin of the plate dorsad of the supra-anal plate weakly and broadly emarginate, the surface of the plate moderately concave mesad: supra-anal plate trigonal, slightly longer than the proximal width: cerci styliform, regularly tapering from the relatively incrassate base to the very slender distal portion, straight: ovipositor with its greatest length equal to four-fifths of the length of the pronotal disk, bent arcuate in proximal third, thence very gently arcuate, the greatest depth of the ovipositor equal to about two-fifths of the ovipositor length, the ovipositor very faintly narrowing in the distal half, the extremity obliquely arcuato-truncate, the obliquity towards the dorsal margin, the margin of the apex with deeply cut denticulations, which are larger mesad, other margins of the ovipositor unarmed: subgenital plate small, compressed trigonal, paired carinae converging distad.

Cephalic femora four-fifths as long as the disk of the pronotum, subcompressed, ventro-cephalic margin with five spines, genicular lobes bispinose: cephalic tibiae with the auditory foramina having rimate apertures on both faces. Median femora one and one-third times as long as the pronotal disk: median tibiae weakly expanded in the proximal half on the ventral surface, there subcompressed. Caudal femora in length equal to two-fifths of the length of the

tegmina, compressed, rather regularly tapering distad, the external face with a well-impressed but irregular pattern of the pagina; genicular lobes bispinose; ventral-external margin with a continuous series of twenty-one to twenty-two spines, the ventro-internal margin with a series of nine to ten spines restricted to the distal section of the margin, the spines of both margins of similar size and equally spaced, except that distad on the external margin they are more crowded than elsewhere; ventral surface moderately channelled: caudal tibiae in actual length slightly surpassing that of the caudal femora, faintly compressed proximad, the dorsal surface moderately deplanate, dorsal margins regularly spined, the ventral margins with a much sparser spination.

General coloration of the head and pronotum light yellowish-olive to ecru-olive, on the abdomen saccardo's-umber, on the venter of the same bister; tegmina and exposed portion of wings courge-green to light elm-green, blotched with chamois and cream-buff, probably through dessication of the original green color; limbs saccardo's-umber to ecru-olive. Eyes mottled prout's-brown and fuscous; antennae amber-brown, greenish proximad. Pronotum with the lateral angles of the disk rather obscurely lined with ochraceous-buff, the short sulci (paired) which intersect the lateral angles of the disk at the cephalic third are lined with black. Humeral trunk of the tegmina and the principal veins of the same lined with buffy, the veins other than those of the trunk with this passing into cedar-green; discoidal field and the adjacent portion of the marginal field with numerous, scattered, very small points of creamy-white. Ovipositor ochraceous-tawny, more or less distinctly edged with russet.

Length of body, 29.3 mm.; length of pronotum, 7.6; greatest (caudal) width of pronotal disk, 6.1; length of tegmen, 50; greatest width of tegmen, 21.4; length of caudal femur, 20; length of ovipositor, 6.1.

The type of this most interesting species is unique.

**Ischyra punctinervis** Brunner.

1878. *I[schyra] punctinervis* Brunner, Monogr. der Phaneropt., p. 344, pl. VII, fig. 99a-b. [Matto Grosso, Brazil.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

This specimen is faintly smaller than the original measurements and shows no sanguineous punctations at the base of the tegmina, although the ivory areas and the rows of fuscous points bordering the veins are well marked. It fully agrees otherwise with the description.

## PSEUDOPHYLLINAE.

**Meroncidius flavolimbatus** Brunner.

1895. *Meroncidius flavolimbatus* Brunner, Monogr. der Pseudophyll., p. 150. [Paraguay; State of Espírito Santo, Brazil.]

Bonito, State of Pernambuco. January 11, 1883. (A. Koebele; on *Agave* sp.). One female. [U. S. N. M.]

This specimen fully agrees with the original description of the species, which can be distinguished from *marginatus* Walker by its smaller size, its relatively straighter cephalic femora, its slightly more compressed pronotum, which has the marginal color contrast moderately decided, and its less produced lateral angles of the meso- and metasternum. The present species has the same type of mottled light and dark coloration of the sutural margin of the tegmina found in *marginatus*, but as the general color is darker the pale areas are reduced in size and less conspicuous. At first glance *flavolimbatus* might be taken for a small specimen of *marginatus*, but the structural differences appear to be sufficiently marked to distinguish the two.

**Meroncidius marginatus** Walker.

1870. *Meroncidius marginatus* Walker, Catal. Spec. Derm. Salt. Brit. Mus., III, p. 450. [Pará, Brazil.]

Bonito, State of Pernambuco. January 11, 1883. (A. Koebele; on *Agave* sp.) One male, two females. [U. S. N. M.]

These specimens agree with Walker's description of the species, which is close to *ochraceus* of Stoll. The older species, however, as understood by Brunner, has unicolorous antennae, the ovipositor without distal rugae, very much greater general size and a distinctly longer, although no deeper, ovipositor.

**Anchiptolis chapadensis** Bruner.

1915. *Anchiptolis chapadensis* Bruner, Ann. Carneg. Mus., IX, p. 355. [Chapada, Matto Grosso, Brazil.]

Chapada, State of Matto Grosso. June and September. (H. H. Smith.) Two males, three females. [U. S. N. M.]

These specimens fully agree with the original description, which was based on a single female. Several features of the male sex are worthy of comment. The stridulating field of the male tegmina occupies about one-fourth of the sutural section of the tegmina. The two disto-dorsal abdominal segments are shining black, as in the female sex. Supra-anal plate rather short, trigonal in form, with the distal angle produced into an acute process; cerci short, incrassate, faintly inbowed, the apex recurved with a straight tooth,

the ventro-lateral section of the shaft with a shallow longitudinal impression; subgenital plate distinctly narrowed distad, the distal extremity very narrowly and quite deeply U-emarginate; styles rather short, cylindrical, ventral surface subsulcate.

The measurements (in millimeters) of the present material are as follows:

Length of body	Length of pronotum	Greatest width of pronotum	Length of tegmen	Greatest width of tegmen	Length of caudal femur	Length of ovipos- itor
♂.....23 <sup>47</sup>	7.9	5.1	29.2	6.3	19.5	.....
♂.....32.7	8.8	5.4	34.5	7.5	22.2	.....
♀.....33.5	8.7	5.5	38	8.7	20.6	16.9
♀.....31	8.1	5.4	37.5	8	22	17.6
♀.....28	8.1	5.3	36.5	8.5	22.7	17.2

**Tanusia angulata-ocellata** Brunner

1895. *Tanusia angulato-ocellata* Brunner, Monogr. der Pseudophyll., p. 251. [Brazil.]

Canta Gallo, State of Rio de Janeiro. (Dr. Teuscher; Thayer Expedition.) One female. [M. C. Z.]

This specimen is typical except that the proximal three-fifths of the tegmina is green, instead of ferruginous as described. We know there is dichromatism in some of the Pterochrozae (i. e. *Mimetica*) and this is apparently a case of the same sort. We have not used Serville's *picturata* for this species, an action taken by Kirby, as we do not feel convinced the older name was applied to the same species as Brunner's *angulato-ocellata*.

This is the first record of the species with exact locality.

COPIPHORINAE.

**Copiphora producta** (Bolivar).

1903. *Copiphora producta* Bolivar, Revista Chileña Hist. Nat., VII, p. 143. [Paraguay.]

Goyaz, State of Goyaz. One male. [Hebard Cln.]

This specimen shows a few differences from the description, which was based on the female sex, but these are chiefly in measurements and are probably due to sexual difference in proportions. The development of the caudal section of the pronotum is exactly as described by Bolivar.

The species has been recorded from Rio de Janeiro, Brazil, and "Province del Sara", Bolivia, by Bruner.

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<sup>47</sup> This measurement is unnaturally small, as the abdomen is shrunken.

**Oxyprora flavigornis** Redtenbacher.

1891. *Oxyprora flavigornis* Redtenbacher, Verhandl. k.-k. Zool.-botan. Gesell. Wien, XLI, p. 360. [Bahia, Brazil.]

Goyaz, State of Goyaz. One female. [Hebard Cln.]

Chapada, State of Matto Grosso. July and October. (H. H. Smith.) Three males, one female. [U. S. N. M.]

One male is decidedly brownish, apparently indicating the presence of a brown phase in the species.

Previous records were of its occurrence at Chapada, by Bruner,<sup>48</sup> and Urucum, near Corumbá, Matto Grosso, by Giglio-Tos.<sup>49</sup>

**Caulopsis lancifera** new species. (Plate XI, figs. 34, 35, 36, 37 and 38.)

Closely related to *C. cuspidata* Scudder, from Cuba, but differing in the more compressed form, more elongate fastigium, which is also deeper and faintly decurved distad, in the more retreating face, in the much reduced stridulating field of the male tegmina, which has the tambourine hardly half the size of that found in *cuspidata*, in the narrower and more acuminate tegmina, the more deeply divided disto-dorsal abdominal segment of the male, the armament of the male cerci and the more deeply emarginate subgenital plate.

TYPE.—♂; Corumbá, Matto Grosso, Brazil. March. (H. H. Smith; lowland.) [United States National Museum.]

Size rather small: form very elongate: surface of head, pronotum, pleura and sterna cibroso-punctulate. Head with the greatest dorsal length (from apex of fastigium) nearly twice as great as the length of the pronotal disk: dorsal line of occiput and fastigium in greater part faintly and regularly ascending cephalad: fastigium with its dorsal length subequal to the length of the occiput and inter-ocular region of vertex, lanceolate, faintly narrowed proximad, subequal in width of remainder of proximal half, then narrowing distad to the strongly blunted apex; ventral line of fastigium, when seen from the side, faintly concave; ventral surface non-carinate, but deeply punctate, proximal tooth prominent, completely in contact with the fastigium of the face; facial line, when seen from the side, greatly retreating, straight: eyes hardly prominent, ovate-orbicular in basal outline: antennae at least two and one half times as long as body.

Pronotum of the usual type for the genus, the greatest caudal width of the pronotal disk contained nearly twice in the greatest length of the same: cephalic margin of disk weakly arcuato-emarginate, cauda margin of disk arcuato-truncate, lateral angles of disk distinct but well rounded, except caudad, when they are slightly more decided shoulders; transverse sulcus placed slightly cephalad of the cephalic

<sup>48</sup> Ann. Carneg. Mus., IX, p. 389, (1915).

<sup>49</sup> Boll. Mus. Zool. Anat. Comp. Torino, XV, no. 377, p. 7, (1900).

third, a fine medio-longitudinal sulcus impressed for some distance caudad of the transverse sulcus: lateral lobes of the pronotum distinctly longitudinal; cephalic margin of lobes strongly oblique, arcuato-truncate; ventro-cephalic angle hardly indicated; ventral margin oblique truncate; ventro-caudal angle rounded obtuse, caudal margin strongly arcuate; humeral sinus deep, well rounded rectangulate. Tegmina elongate lanceolate, the greatest width contained slightly more than nine times in the length, surpassing the apex of the abdomen by more than twice the dorsal length of the head: costal margin straight except for a regular arcuation in the distal third to the suturad apex, which is rather well rounded: stridulating field small, in its entirety not quite two-thirds as long as the dorsum of the pronotum, free margin but moderately arcuate, stridulating vein not more pronounced than the other veins of the field. Wings equalling the tegmina.

Prosternal spines very elongate, aciculate, parallel; sternal lobes strongly compressed, those of mesosternum rounded rectangulate, of metasternum arcuate laterad, with an extremely faint obtuse-angulation caudad. Disto-dorsal abdominal segment with a broad, relatively shallow, obtuse-angulate depressed area on the distal half of the dorsal surface, this area deepest disto-mesad and its proximal outline is rectangulate, the distal margin obtuse-angulate emarginate, the supra-cercal angles moderately acute, cercal emarginations relatively deep, broad, truncate at the bottom: subgenital plate reflexed, linguiform: cerci of medium length, moderately robust, covered with shagreenous points which give rise to short chaetiform and long piliform hairs; when seen from the dorsum the cerci are nearly straight, when seen from the side they are moderately regularly arcuate, subequal in depth; apex obliquely subtruncate, supplied with two spines, one large and cultriform, directed dorsad, the other aciculate, directed toward the median line and placed distad of the cultriform spine; subgenital plate compressed, relatively short, distal margin narrowly fissato-emarginate; styles articulate, short.

Cephalic and median limbs relatively short, comparatively slender: caudal femora elongate, slender, one-half as long as the tegmina; ventro-external margin with two to five spines, ventro-internal margin with two to three spines. Genicular lobes unarmed except those of the caudal femora and the caudal one on the median femora.

ALLOTYPE.—♀; Iça, River, State of Amazonas, Brazil. (Thayer Expedition.) [Museum of Comparative Zoology.]

This specimen differs from the description of the type in the following features. Size larger, form faintly more robust. Head with the greatest dorsal length one and a half times as long as the pronotal disk; dorsal line of occiput and fastigium faintly and regularly ascending; facial line slightly less retreating than in the male; antennae broken. Cephalic margin of disk of pronotum very faintly more angulato-emarginate than in the male; greatest caudal width of pronotal disk three-fifths of length of same. Disto-dorsal abdominal segment deeply and narrowly V-emarginate mesad: cerci terete, tapering in distal third, acute, faintly arcuate when seen from the side; ovipositor in length subequal to that of the dorsum of the head and pronotum together, relatively broad, subequal in width, faintly decurved in distal two-thirds, apex acute: subgenital plate produced trigonal, compressed, subcarinate ventrad, distal margin narrow, shallowly arcuate-emarginate. Caudal femora slightly less than one-half as long as the tegmina: ventro-external margin armed with three to four, ventro-internal margin with two to three spines.

General color serpentine-green to old-gold above, beneath old gold to dull yellow-ocher. Eyes russet; antennae dresden-brown to buckthorn-brown, passing into the general color proximad. Larger areas of the male stridulating field washed to a variable degree with mummy brown. Tibial spines yellowish, tipped with brownish. The female (*allotype*) has lost all trace of the original coloration, the above features being derived entirely from the type and paratype.

*Measurements (in millimeters.)*

	Length of body	Length of fas- tigium	Length of pro- notum	Greatest caudal width of pro- notum	Length of tegmen	Greatest width of tegmen	Length of caudal femur	Length of ovi- posi- tor
♂, Corumbá, Brazil, type.....	24	3.6	4.3	2.2	29.2 <sup>50</sup>	3.1	14.8	.....
♂, Corumbá, Brazil, paratype....	23	3.1	4	2.2	28.2	2.6	13.2	.....
♀, Iça River, Brazil, <i>allotype</i> ....	29 <sup>51</sup>	4	4.6	2.8	35.2	3.5	15.8	12.9

In addition to the type and allotype we have before us a paratypic male bearing the same data as the type. It is a smaller insect than

<sup>50</sup> Apices damaged. Measurement approximate.

<sup>51</sup> Exclusive of ovipositor.

the type, with the fastigium relatively shorter, but it is clearly the same species as the described individual. The number of spines on the ventro-external margin of the caudal femora is two to five in the paratype.

**Neoconocephalus irroratus** (Burmeister).

1838. *C[onocephalus] irroratus* Burmeister, Handb. der Entom., II, abth. II, pt. 1, p. 705. [Brazil.]

Bonito, State of Pernambuco. February, 1883. (A. Koebele.) Three females. [U. S. N. M.]

These specimens have lost all of their original coloration, from liquid immersion, but they are inseparable from well preserved specimens from other localities.

**Neoconocephalus vicinus** Karny.

1907. *Neoconocephalus vicinus* Karny, Abh. k.-k. Zool.-bot. Gesell., Wien, IV, heft. 3, pp. 26, 34. [Rio Grande do Sul (Brazil): Paraguay.]

Chapada, State of Matto Grosso. May and June. (H. H. Smith). Four females. [U. S. N. M.]

These individuals have been compared with specimens from Sapucay, Paraguay. Two of the series are in the brownish phase of coloration, with the costal margin of the tegmina finely lined with fuscous, while the others are in the greenish phase, with the tegmina not lined. The degree of completeness of the blackish marking on the venter of the fastigium varies appreciably.

We have every reason to believe that Bruner's *Neoconocephalus longifosssor*, described from Chapada,<sup>52</sup> is identical with this species.

**Bucrates<sup>53</sup> capitatus** (DeGeer).

1773. *Locusta capitata* DeGeer, Mém. Hist. Ins., III, p. 455, pl. 40, fig. 1. [Unknown locality.]

Bonito, State of Pernambuco. February 15, 1883. (A. Koebele.) One immature female. [U. S. N. M.]

<sup>52</sup> Ann. Carneg. Mus., IX, p. 395, (1915).

<sup>53</sup> Scudder's *Conocephalus clausus* (Proc. Boston Soc. Nat. Hist., XX, p. 94, (1878)), from Jalisco (in error, Jalasco), Mexico, we find, on examination of the unique type, to be a *Bucrates*. It differs from *capitatus* in the more compressed form, more elevated fastigium, shorter lateral lobes of the pronotum, the greatly elongate tegmina, while the ovipositor is shorter, decurved in distal half and there quite broad, distinctly broader than proximad. A number of other features of difference in *clausus*, such as more prominent eyes, less deeply emarginate subgenital plate, more deeply impressed transverse sulus of the pronotum, different areolation of the marginal field of the tegmina, etc., are also present. The species has the caudal tibiae strongly expanded laterad. No close affinity to *Parabucrates* is noticed, while it has no affinity with *Homorocoryphus*, or the species *H. laticeps*, as suggested by Karny (Gen. Insect. Orth., Copiphorinae (fasc. 139), p. 38).

We have compared this individual with an adult female from La Piedrita, Venezuela (II, 16, 1911; Stewardson Brown), in the collection of the Academy, and as far as can be determined from the immature specimen, which is in the instar preceding maturity, the two represent the same species. Redtenbacher has recorded the species from Bahia.

#### LISTROSCELINAE.

##### *Listrocelis atrata* Redtenbacher.

1891. *Listrocelis atrata* Redtenbacher, Verhandl. k.-k. Zool.-bot. Gesell. Wien, XLI, pp. 544, 545. [Nova Friburgo (Neu Freiburg), State of Rio de Janeiro, Brazil.]

Espirito Santo, Brazil. One male. [Hebard Cln.]

This specimen is somewhat larger than the measurements given by Redtenbacher, but it does not appear to differ in other features. From the closely related *L. carinata* Karny, the present specimen differs, as does the description of *atrata*, in the longer and strongly arcuate process of the left mandible and the straight cerci.

The localities given above are all known for the species.

#### CONOCEPHALINAE.

##### *Conocephalus iriodes* Rehn and Hebard.

1915. *Conocephalus iriodes* Rehn and Hebard, Trans. Amer. Entom. Soc., XLI, pp. 231, 258, pl. XXI, fig. 6, pl. XXII, figs. 5 and 23, pl. XXIII, figs. 12 and 13, pl. XXIV, fig. 5. [Cuidad Bolívar and Maripa, Venezuela; Kaiteur (type and allotype) and Rockstone, British Guiana; Ireng River near Roraima, British Guiana; Bonito, Pernambuco, Brazil.]

Bonito, State of Pernambuco, January 7 and 15, 1883. (A. Koebele.) One male. [U. S. N. M.]

This specimen, like the female from the same locality previously recorded by us, has been immersed in alcohol or a similar preservative, so that to-day its distinctive coloration is almost entirely lacking. The caudal limbs and the cephalic and median ones on the left side are missing, but all the important structural features of the species are evident. The tegmina are longer than in any of the other males measured by us, being but slightly shorter (18.3 mm.) than those of the female from the same locality previously measured.<sup>54</sup>

##### *Conocephalus saltator* (Sauvage).

1859. *X[ephidium] saltator* Sauvage, Rév. et Mag. de Zool., 2<sup>e</sup> ser. XI, p. 208. [Guiana.]

Bonito, State of Pernambuco, January 27, 1883. (A. Koebele.) One male. [U. S. N. M.]

This specimen is of the brachypterous type.

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<sup>54</sup> Vide supra.

## GRYLLIDAE.

## GRYLLOTALPINAE.

**Scapteriscus vicinus** Scudder.

1869. *Scapteriscus vicinus* Scudder, Mem. Peabody Acad. Sci., I, pp. 7 and 12, pl. 1, figs. 4 and 23. [Rio Negro; Piauhy and Pará, Brazil; Panama; Rio Grande (Brazil?); Asia?]

State of São Paulo. (Hammar.) One male. [Cornell Univ.]

## GRYLLINAE.

**Nemobius hebardii** Rehn.

1915. *Nemobius (Argizala) hebardii* Rehn, Proc. Acad. Nat. Sci. Phila., 1915, p. 290, figs. 4 and 5. [Buenos Aires (type locality) and Misiones, Argentina.]

Bonito, State of Pernambuco. February 27, 1883. (A. Koebele.) One female. [U. S. N. M.]

This specimen fully agrees with the typical material, and, like the original individuals, has caudate wings.

This record carries the range of the species greatly to the northward.

## OECANTHINAE.

**Oecanthus minutus** Saussure.

1878. *Oe[canthus] minutus* Saussure, Mélang. Orthopt., II, fasc. VI, p. 594. [Pernambuco, Brazil.]

Bonito, State of Pernambuco. January 16, 1883. (A. Koebele; collected on cotton.) One male, one female. [U. S. N. M.]

These specimens show no differences worthy of mention from the original description. The disparity in size of the two faces of the foramina of the cephalic tibiae is quite evident, while in the measurements the female, which is the sex of the type, shows no noteworthy difference except that the tegmina are about one millimeter longer. The male tegmina is narrow, the greatest width of dorsal field contained two and one-half times in the greatest length of the same. Both of the present specimens are minus two to three legs and the coloration has been much affected in the male.

## TRIGONIDIINAE

**Cyrtoxiphia pernambucensis** new species. (Plate XI, fig. 39; text fig. 1.)

This species is a relative of *C. gundlachi* (the genotype), from which it differs chiefly in the more deplanate head and more elongate eyes, which in basal outline are more pyriform than reniform; the head when seen from the cephalic aspect is much more strongly transverse and shallower in proportion to its depth than in *gundlachi*. The pronotum of the male is slightly less decidedly transverse, with a more marked cephalic narrowing than in *gundlachi*, while the tegmina of the male have the dorsal field slightly narrower

in *pernambucensis* than in *gundlachi*, with the speculum and the principal veins more longitudinal. Most of the limbs are missing in the unique type of *pernambucensis*. It is probable that the Pernambuco material referred to *gundlachi* by Saussure<sup>55</sup> belongs to this species.

TYPE.—♂; Bonito, State of Pernambuco, Brazil. January, 1883. (A. Koebele.) [United States National Museum.]

Size medium (for the genus); form slender but appreciably depressed; surface of body and limbs rather thickly clothed with short hairs. Head of the transverse depressed type characteristic of the genus; occiput and fastigium strongly and uniformly deplanate declivous when seen from the side, the fastigio-facial angle rectangular; interspace between the eyes broad, faintly exceeding the greatest length of the eye, inter-antennal width of the frontal costa less than one-third of the interocular width, dorsum of the fastigium and cephalic section of occiput with a delicate medio-longitudinal sulcus: facial line, when seen from the side, slightly arcuate: palpi rather short, fourth joint slightly shorter than the third joint, fifth joint faintly shorter than the fourth, the fifth joint forming a nearly equilateral triangle, the distal margin truncate and but faintly shorter than the length of the joint: eyes distinctly longitudinal pyriform, the greatest depth, which is cephalad, contained about one and a half times in the eye length: antennae with the proximal joint broad, strongly depressed.

Pronotum transverse, the greatest caudal width one and two-thirds times the greatest length, the cephalic width about two-thirds the caudal width, when seen from the dorsum the pronotum is appreciably narrowed cephalad: cephalic margin of disk faintly arcuate, caudal margin of disk bisinuato-truncate; disk of the pronotum with a medio-longitudinal sulciform impression for the greater portion of its length, lateral angles of disk well rounded: lateral lobes of pronotum subrectangulate, distinctly longer than deep: cephalic margin, moderately oblique, truncate, ventro-cephalic

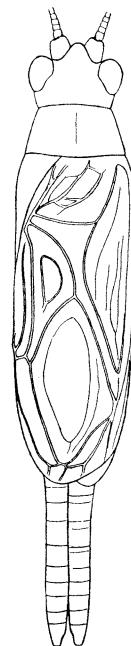


Fig. 1.—*Cyrtostixpha pernambucensis* new species. Dorsal outline of male (type). ( $\times 8$ .)

<sup>55</sup> Mél. Orth., II, fasc. VI, p. 620, (1878).

angle well rounded, ventral margin subtruncate, ventro-caudal angle narrowly rounded, caudal margin straight; surface of lobes with an oblique, poorly delimited, broad depression, its general trend ventro-caudad.

Tegmina moderately narrow, their greatest width contained about two and one-half times in the greatest tegminal length; dorsal venation and areas strongly longitudinal in disposition (see figure 1); lateral venation with the mediastine vein moderately bi-sinuate, three short, free veins present, the second abbreviate. Wings surpassing the tegmina by about one and a half times the combined length of the head and pronotum. Cerci failing to reach the apices of the closed wings by about one-third the length of the exposed portion of the latter. Cephalic tibiae faintly fusiform: both faces with an elliptical foramen. Caudal limbs missing.

General coloration dull colonial-buff, apparently quite greenish in life. Eyes tawny, becoming russet ventro-cephalad.

Length of body, 6 mm.; length of pronotum, 1; greatest caudal width of pronotum 1.7; length of tegmen 5.3; greatest width of dorsal field of tegmen, 1.9.

The type is unique.

**Anaxipha<sup>56</sup> aptera** (Chopard).

1912. *Cyrtotaxiphia aptera* Chopard, Ann. Soc. Entom. France, LXXXI, p. 410, 4 figs. [Charvein, St. Laurent and Nouveau-Chantier, French Guiana.]

Bonito, State of Pernambuco. January, 1883. (A. Koebele.)  
One male. [U. S. N. M.]

**Anaxipha olmeca** (Saussure).

1897. *Cyrtotaxiphus olmecus* Saussure, Biol. Cent.-Amer., Orth., I, p. 236, pl. XI, figs. 42 and 43. (Teapa, Tabasco, Mexico.)

Bonito, State of Pernambuco. January, 1883. (A. Koebele.)  
Two females. [U. S. N. M.]

The reference of this material to *olmecus* is provisional, as we have no Mexican individuals for comparison, and the Bonito representation is not in as good condition as could be desired. It shows, however, no differences worthy of mention from the original description and figures, and for the present must be referred here. This is the first South American record of the species.

ENEOPTERINAE.

**Podoscirtus americanus** Saussure.

1878. *P[odoscirtus] americanus* Saussure, Mélang. Orthopt., II, fasc. VI, pp. 776, 782. [Bahia, Brazil.]

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<sup>56</sup> For comments on the characters separating *Cyrtotaxiphia* and *Anaxipha*, see Rehn and Hebard, Entom. News, XXIII, pp. 411 and 412; PROC. ACAD. NAT. SCI., PHILA., 1916, pp. 300 to 302.

Bonito, State of Pernambuco. February, 1883. (A. Koebele.)  
One female. [U. S. N. M.]

This specimen fully agrees with the description of the present species. The only really noteworthy difference is that the caudal tibiae have five spines on the external and six on the internal dorsal margins, instead of 5:5 or 4:3 as described.

This is, apparently, the first record of this magnificent species since the original description.

**Aphonomorphus inopinatus** new species. (Plate XI, figs. 40, 41 and 42; text figure 2.)

Apparently related to *A. mutus* (Saussure), from Guiana, from which it differs chiefly in the caudal margin of the pronotum being hardly angulate caudad, in the lateral lobes of the pronotum being more longitudinal than quadrate, in the more numerous (six) spines on the dorso-internal margin of the caudal tibiae, in the fewer (two) spines on the dorso-external margin of the caudal metatarsi and in the distal palpal joint not being black.

TYPE.—♀ ; Bonito, State of Pernambuco, Brazil. January, 1883.  
(A. Koebele.) [United States National Museum.]

Size medium: form moderately elongate, slightly depressed: surface of body and limbs rather sparsely pilose, of tegmina microscopically adpressed pilose. Head with its caudal width but faintly greater than the cephalic width of the pronotum, when seen from the cephalic aspect the greatest depth is slightly greater than the width across eyes: occiput weakly declivous cephalad: ocelli of medium size, placed in an arcuate line; median one transverse elliptical, weakly fossetted cephalad, the interspaces between the median and lateral ocelli slightly greater than the short dimension of the median one; lateral ocelli sublongitudinal in position, ovate, larger than the median one, separated from the eyes by a distance subequal to that between the median and lateral ocelli: inter-antennal rostrum rounded obtuse-angulate when seen in lateral outline, its least width subequal to that of the proximal-antennal joint, dorsal section weakly fossetted: eyes but moderately prominent, slightly directed cephalad, subreniform and narrow ventro-cephalad in basal outline: palpi with the third joint relatively heavy; fourth joint subequal in length to the third, slender proximad; fifth joint elongate securiform, its length greater than the breadth of



Fig. 2.—*Aphonomorphus inopinatus* new species. Dorsal outline of tegmina of female (type). ( $\times 3$ .)

the distal margin, which latter is truncate, the flexor margin straight, rounding into the distal margin, the extensor margin moderately but distinctly concave: antennae incomplete.

Pronotum transverse, the greatest median length contained nearly one and a half times in the greatest caudal width of the pronotum; in transverse section the dorsum of the pronotum is rather strongly arcuate, well rounding into the lateral lobes: cephalic margin of dorsum emarginato-truncate; caudal margin bisinuate laterad, rotundato-angulate mesad; lateral borders of the disk weakly diverging caudad, all pronotal margins excepting the usual lamellato-cingulate portion ventro-caudad on the lateral lobes, narrowly cingulate: medio-longitudinal line weakly impressed; pyriform impressions transverse, elongate: lateral lobes longitudinal, their depth contained nearly twice in their length, moderately impressed ventro-caudad; ventro-cephalic angle and ventral margin arcuate, ventro-caudal angle rounded obtuse.

Tegmina very slightly surpassing the tips of the caudal femora, relatively narrow, the lateral borders of the dorsal field subparallel proximad, faintly arcuate convergent distad: lateral field rather narrow, subequal in width in the proximal third, very gradually narrowing thence to the distal fourth, from which point distad it more sharply narrows; medastine vein with four to five rami and the field with five free veins proximad; dorsal field with its greatest width contained about five times in the greatest tegminal length; ulnar vein strongly sinuate at about its middle; anal vein with a faint sinuation slightly proximad of its middle; axillary veins (two) simple; median vein with four oblique rami distad, which are not strongly marked, yet form with the ulnar and anal veins the usually distinct pattern of oblique "sectors" found in most of the species of the genus; longitudinal sinuate intercalated nervures and short cross-veins evident. Closed wings extending distad of the tegmina a distance equal to about one and one-third times the length of the pronotum.

Limbs moderately robust, the cephalic and median femora quite deep, moderately compressed. Cephalic tibiae with a small elliptical foramen on the cephalic face, the caudal face imperforate. Caudal femora one and two-fifths times as long as the tegmina, regularly narrowing distad: caudal tibiae subequal to the femora in length; dorso-external margin armed with five major spines, the dorso-internal with six, the dorso-external margin with 3-2-2-1 intercalated spinulations, the internal with 2-2-1-2-0; external distal spurs very

small, dorso-internal spur twice as long as the ventro-internal one: caudal metatarsi with two spinulations on the external, and a single one on the internal, margins; internal distal metatarsal spur subequal to the metatarsus in length. Ovipositor slightly longer than the caudal femora, the structure of the apices very similar to that of the recently described *A. surdus* Rehn,<sup>57</sup> the marginal teeth, however, slightly smaller, more regular and more acute.

General coloration ochraceous-buff; a pronounced grouping of spots along the cephalic, and a less decided row of the same along the caudal, margins of the dorsum of the pronotum, fuscous; a poorly defined speckling on the limbs and over much of the pronotum, cinnamon-brown; eyes cinnamon-brown; tegmina pencilled in weak tawny, the proximal third of the humeral vein lined ventrad with fuscous; ovipositor tipped with fuscous.

Length of body, 13.6 mm.; length of pronotum, 2.8; greatest (caudal) width of pronotum, 3.9; length of tegmen, 15.5; greatest width of dorsum of tegmen, 3; length of caudal femur, 11; length of ovipositor, 11.8.

In addition to the type we have before us a paratype female with the same data as the type, except that it was taken in February, 1883. This specimen is slightly larger than the type and has been badly damaged, lacking all the limbs excepting the dextral median one and the dextral caudal femur, while the tegmina are not perfect. It is in a more intensive type of coloration than the type, having the punctulation much heavier, far more numerous and fuscous; washes on the fastigium, in the median area of the pronotum, irregular beading along the median vein of the tegmina and a spot at the base of the humeral trunk, cloudings on the tegminal "sectors" and beading along the ventral margins of the caudal femora, fuscous.

**Nessa vectis** new species. (Plate XI, fig. 43: text figure 3.)

This species is referred to *Nessa* provisionally, as it may prove to be generically distinct from the poorly known genus of Walker. From the description of the genus *Nessa*, and the genotypic *N. linearis*, the new species differs in the pronotum being slightly broader than long, in the ovipositor faintly surpassing the length of body and very much longer than the abdomen, in the caudal tibiae having six external and seven internal spines on the dorsal margins, in the

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<sup>57</sup> PROC. ACAD. NAT. SCI. PHILA., 1918, p. 230, pl. II, figs. 71, 72, 73 and 74, (1918).

caudal femora being without distinct black markings and the tegmina with the veins unlined with piceous, and in the smaller size. Some affinity is shown to *Parametrypa* and some similarity to *Cylindrogryllus* and *Tapinopus* is noted, but from the former the new

species differs chiefly in the femoral spination, as well as the elongate and fully developed tegmina, while the shorter pronotum, elongate tegmina, tibial and metatarsal spination, and the abbreviate distal caudal tibial spurs are the more readily perceived features of difference from *Cylindrogryllus*. From *Tapinopus* the new form differs in the shorter head, shorter and simpler pronotum, the imperforate cephalic tibiae, the short cephalic tarsi and the slender ovipositor, which has the distal valves short and slender.

TYPE.—♀; Bonito, State of Pernambuco, Brazil. January 17, 1883. (A. Koebele.) [United States National Museum.]

Fig. 3.—*Nessa vectis* new species. Dorsal outline of female (type). ( $\times 3\frac{1}{2}$ ).

Size medium: form quite elongate, slender, subequal in width: surface of body and limbs with adpressed pile, on the tegmina a similar, but more decidedly microscopical, pile covering is present. Head with its caudal width slightly greater than the cephalic width of the pronotum, depressed, dorsal surface deplanate, greatest width across eyes but faintly less than the greatest length of the head, the greatest depth of the head distinctly less than the greatest width: occiput gently rounded, the interocular portion of the dorsum plane, almost imperceptibly excavate; ocelli placed in a strongly arcuate line, small, the median one slightly smaller than the lateral ones, the median ocellus fossetted cephalad, all the ocelli well separated from each other and also from the eyes: interantennal rostrum with the width subequal to that of the proximal antennal joint, the lateral outline of the rostrum arcuate obtuse-angulate when seen from the side: palpi moderately elongate; fourth joint slightly shorter than the third joint; fifth joint elongate securiform, its flexor length slightly greater than that of the oblique subtruncate distal margin: eyes hardly prominent, elliptical in basal outline, slightly declivent cephalad in their general trend from the horizontal: antennae broken.

Pronotum with the greatest dorsal width about a fourth greater than the median length, the disk weakly transverse, the lateral bor-



ders faintly bowed outward mesad, but the cephalic width is subequal to that caudad; in transverse section the disk is arcuato-deplanate: cephalic margin very faintly and broadly arcuato-emarginate; caudal margin weakly bisinuate-laterad, very slightly and broadly arcuato-angulate; cephalic margin rather narrowly, caudal margin more broadly, cingulate: surface with a narrow medio-longitudinal line, which is delicately filiform cephalad and caudad more broadly and conspicuously indicated; pyriform impressions distinct, rather large, moderately elongate, more approximated than usual; lateral lobes strongly longitudinal, the greatest depth of the lobes contained slightly more than twice in their length, the depth in general subequal; ventro-cephalic angle rounded rectangulate, ventral margin straight, horizontal for two-thirds of its length; ventro-caudal angle obliquely rotundato-truncate, passing into the caudal margin; surface of the lobes with the point of impression ventro-caudad.

Tegmina reaching to the apex of the abdomen, elongate, slender, lateral borders of the dorsal field parallel: costal margin straight; mediastine vein with six oblique rami, three of which are short and distal and three elongate and proximal in origin; marginal field with one free vein proximad; humeral and discoidal veins following the curve of the mediastine vein, simple: dorsal field narrow, its greatest width contained about five and a half times in the greatest length of the same; median vein straight, with two poorly defined rami distad; ulnar vein bifurcate; simple anal and two axillary veins unbranched, regularly placed, nearly longitudinal; veins of the dorsal field almost longitudinal, subparallel, the interspaces with numerous, generally irregular, cross-veins, which are never as distinct as the principal veins and rarely form regularly shaped areolae. Wings, when closed, with their folded tips very briefly surpassing the tegmina. Cerci faintly more than twice as long as the pronotum, tapering, supplied with rather short hairs and elongate, more erect, hairs: ovipositor slightly surpassing the body in length, very slender, weakly compressed, in lateral outline weakly sinuate proximad, moderately curved dorsad in distal three-fifths; surface of the lateral aspects microscopically rugulose; distal valves little inflated, strongly acuminate, ventral surface of valves with a series of weakly recurved, serrate teeth, these decreasing in size distad.

Cephalic and median limbs moderately robust, rather short; cephalic tibiae imperforate, cephalic and median tarsi short. Caudal femora but faintly shorter than the tegmina, moderately robust, regularly

tapering distad: caudal tibiae but faintly shorter than the femora; dorsal margins armed with six external major spines and seven internal ones, the intercalated spinulations numbering 3-2-2-2-0 on the external, and 3-2-1-1-1-0 on the internal margin; distal spurs of the external side small, the internal side having the dorsal distal spur slightly less than twice as long as the ventral one: caudal metatarsi very short, the dorsal surface with two external and one internal spinulations, distal spurs of both sides slightly surpassing the second tarsal joint.

General coloration pale buckthorn-brown, the head inclining toward dresden-brown, the venter of the abdomen ochraceous-tawny. Ocellar region outlined dorsad with fuscous, a V-shaped patch of the same on the occiput; eyes auburn with a median and a dorsal thread of fuscous. Pronotum with a fuscous medio-longitudinal line which is almost completely divided by a thread of the general color, points of fuscous regularly disposed along the cephalic and caudal margins of the disk and along the lateral border of the same, a very faint wash of russet suggesting a post-ocular bar. Tegmina with a moderately broad bar embracing the humeral vein, fuscous, bordered suturad by the pale ochraceous-buff pencilling of the median vein. Abdomen with the dorsum shining blackish-fuscous. Caudal tibiae dorsad weakly washed with mummy-brown. Ovipositor finely lineate on the external surface with blackish-fuscous, the valves chestnut with blackish-fuscous teeth.

Length of body, 16.5 mm.; length of pronotum, 2.7; greatest (caudal) width of pronotum disk, 3; length of tegmen 13.8; greatest width of dorsal field of tegmen, 2.3; length of caudal femur, 12.3; length of ovipositor, 18.5.

The type of this very striking and peculiar species is unique.

## EXPLANATION OF PLATES X, XI.

## PLATE X.

Fig. 1.—*Trachymiopteryx tuberculata* new genus and species. Dorsum of pronotum of male (TYPE). ( $\times 4$ )

Fig. 2.—*Trachymiopteryx tuberculata* new genus and species. Outline of cephalic aspect of head of male (TYPE). ( $\times 4$ )

Fig. 3.—*Musonia costalis* new species. Outline of dorsum of pronotum of male (TYPE). ( $\times 6$ )

Fig. 4.—*Musonia costalis* new species. Outline of cephalic aspect of head of male (TYPE). ( $\times 4$ )

Fig. 5.—*Oxyopsis oculata* new species. Outline of dorsum of pronotum of female (TYPE). (Natural size.)

Fig. 6.—*Oxyopsis oculata* new species. Cephalic aspect of head of female (TYPE). ( $\times 4$ )

Fig. 7.—*Oxyopsis oculata* new species. Apex of tegmen and wing of female (TYPE). (Natural size.)

Fig. 8.—*Parastagmatoptera glauca* new species. Dorsal outline of pronotum of female (TYPE). ( $\times 3$ )

Fig. 9.—*Parastagmatoptera glauca* new species. Cephalic aspect of head of female (TYPE). ( $\times 3$ )

Fig. 10.—*Dyme straminea* new species. Dorsal outline of apex of abdomen of male (TYPE). ( $\times 2$ )

Fig. 11.—*Dyme straminea* new species. Lateral outline of apex of abdomen of male (TYPE). ( $\times 2$ )

Fig. 12.—*Bactridium grande* new species. Lateral outline of apex of abdomen of female (TYPE). (Natural size.)

Fig. 13.—*Diponthus bilineatus* new species. Dorsal view of head and pronotum of male (TYPE). ( $\times 3$ )

Fig. 14.—*Diponthus crassus* Bruner. Misiones, Argentina. Dorsal view of head and pronotum of male. ( $\times 3$ )

Fig. 15.—*Diponthus bilineatus* new species. Lateral outline of apex of abdomen of male (TYPE). ( $\times 3$ )

Fig. 16.—*Diponthus crassus* Bruner. Misiones, Argentina. Lateral outline of apex of abdomen of male. ( $\times 3$ )

Fig. 17.—*Ligocatinus sordidus* new species. Cephalic aspect of dorsal portion of head of female (TYPE). (Greatly enlarged.)

Fig. 18.—*Ligocatinus sordidus* new species. Lateral view of ovipositor of female (TYPE). ( $\times 6$ )

Fig. 19.—*Ligocatinus minutus* new species. Lateral outline of pronotum of male (TYPE). ( $\times 6$ )

Fig. 20.—*Ligocatinus minutus* new species. Dorsal outline of apex of abdomen of male (TYPE). ( $\times 6$ )

Fig. 21.—*Anaulacomera bellator* new species. Lateral outline of pronotum of male (TYPE). ( $\times 6$ )

Fig. 22.—*Anaulacomera bellator* new species. Cercus of male (TYPE). (Greatly enlarged.)

Fig. 23.—*Anaulacomera intermedia* Brunner. Petropolis, Brazil. Cercus of male. (Greatly enlarged.)

Fig. 24. *Anaulacomera libidinosa* new species. Lateral view of cercus of male (TYPE). (Greatly enlarged.)

## PLATE XI.

Fig. 25.—*Anaulacomera libidinosa* new species. Lateral outline of right tegmen of male. ( $\times 2\frac{1}{2}$ )

Fig. 26.—*Phylloptera tenella* new species. Lateral outline of left tegmen of female (TYPE). ( $\times 2\frac{1}{2}$ )

Fig. 27.—*Phylloptera tenella* new species. Outline of eye in latero-cephalic aspect. Female (TYPE). (Greatly enlarged.)

Fig. 28.—*Phylloptera tenella* new species. Lateral view of ovipositor of female (TYPE). (Greatly enlarged.)

Fig. 29.—*Phylloptera cognata* new species. Lateral outline of left tegmen of female (TYPE). ( $\times 2\frac{1}{2}$ )

Fig. 30.—*Phylloptera cognata* new species. Outline of eye in latero-cephalic aspect. Female (TYPE). (Greatly enlarged.)

Fig. 31.—*Phylloptera cognata* new species. Lateral view of ovipositor of female (TYPE). (Greatly enlarged.)

Fig. 32.—*Lobophyllus reversus* new species. Lateral outline of pronotum of female (TYPE). ( $\times 1\frac{1}{2}$ )

Fig. 33.—*Lobophyllus reversus* new species. Lateral outline of right tegmen of female (TYPE). (Natural size.)

Fig. 34.—*Caulopsis lancifera* new species. Dorsal outline of fastigium of male (TYPE). (Greatly enlarged.)

Fig. 35.—*Caulopsis lancifera* new species. Lateral outline of fastigium of male (TYPE). (Greatly enlarged.)

Fig. 36.—*Caulopsis lancifera* new species. Dorsal outline of stridulating field of left tegmen of male (TYPE). (Greatly enlarged.)

Fig. 37.—*Caulopsis lancifera* new species. Dorsal outline of apex of abdomen of male (TYPE). (Greatly enlarged.)

Fig. 38.—*Caulopsis lancifera* new species. Lateral outline of apex of abdomen of male (TYPE). (Greatly enlarged.)

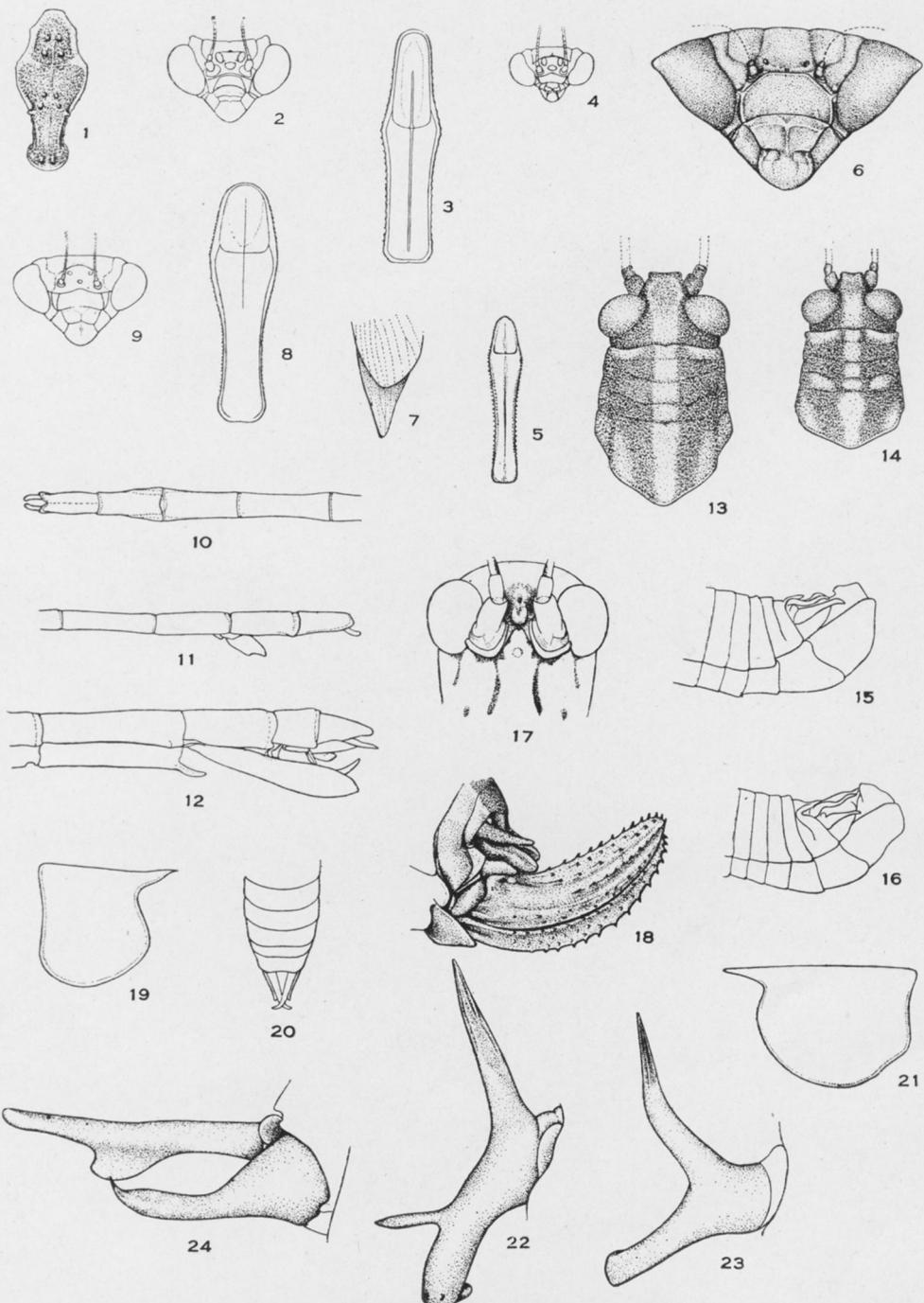
Fig. 39.—*Cyrtoziphia pernambucensis* new species. Lateral outline of head of male (TYPE). (Greatly enlarged.)

Fig. 40.—*Aphonomorphus inopinatus* new species. Ocelli of female (TYPE). (Greatly enlarged.)

Fig. 41.—*Aphonomorphus inopinatus* new species. Palpus of female (TYPE). (Greatly enlarged.)

Fig. 42.—*Aphonomorphus inopinatus* new species. Cephalic face of cephalic tibia of female (TYPE). (Greatly enlarged.)

Fig. 43.—*Nessa vectis* new species. Palpus of female (TYPE). (Greatly enlarged.)



REHN: BRAZILIAN ORTHOPTERA.

